

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

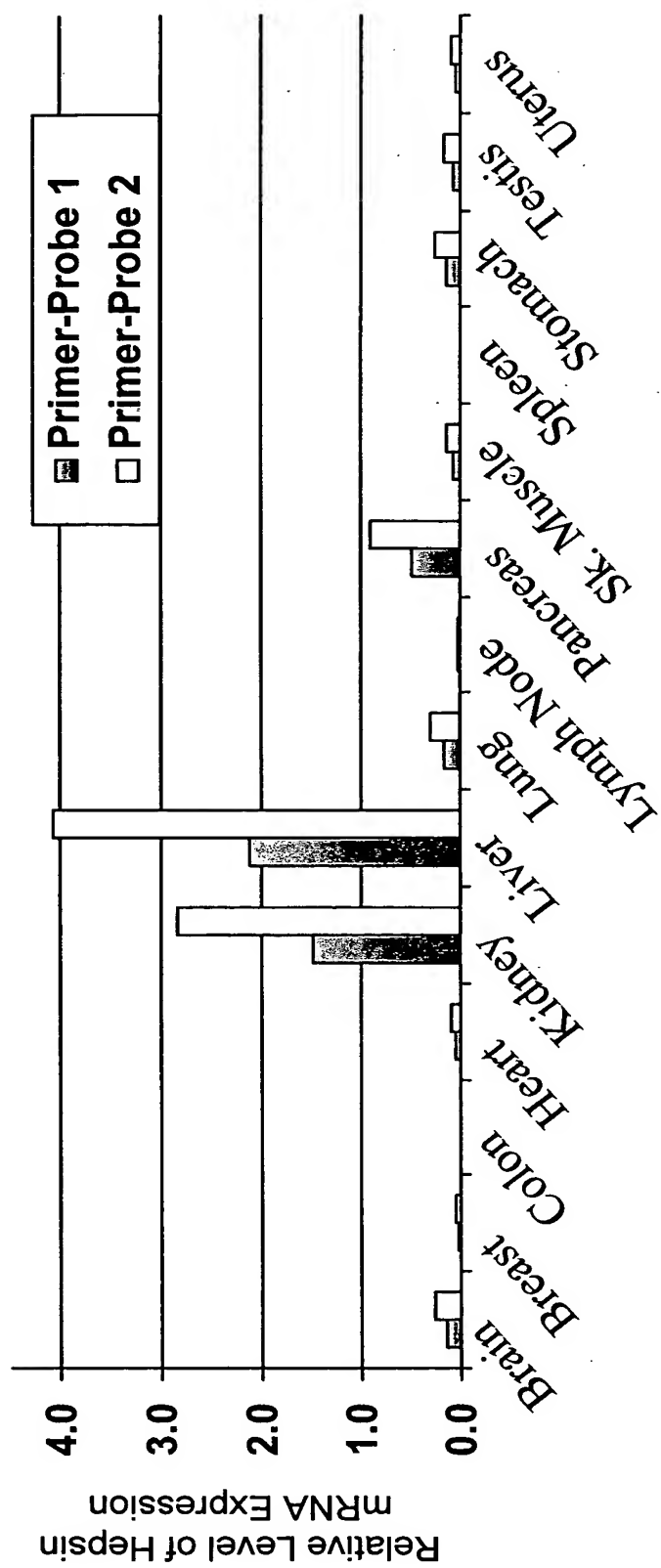
**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

heart
brain
placenta
lung
liver
skeletal muscle
kidney
pancreas
stomach
thyroid
spinal cord
lymph node
trachea
adrenal gland
bone marrow
spleen
thymus
prostate
testis
ovary
small intestine
colon
peripheral blood leukocyte



FIG. 1

FIG. 2



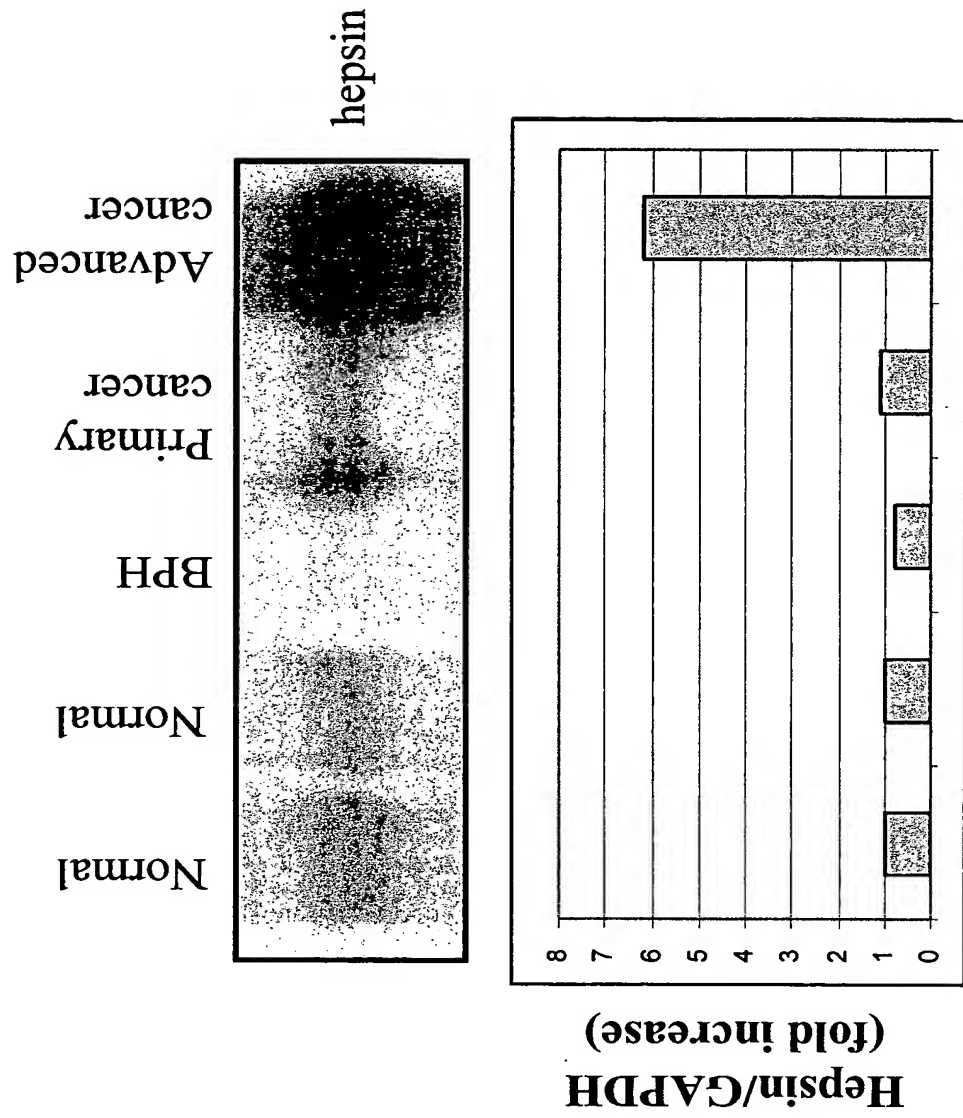


FIG. 3

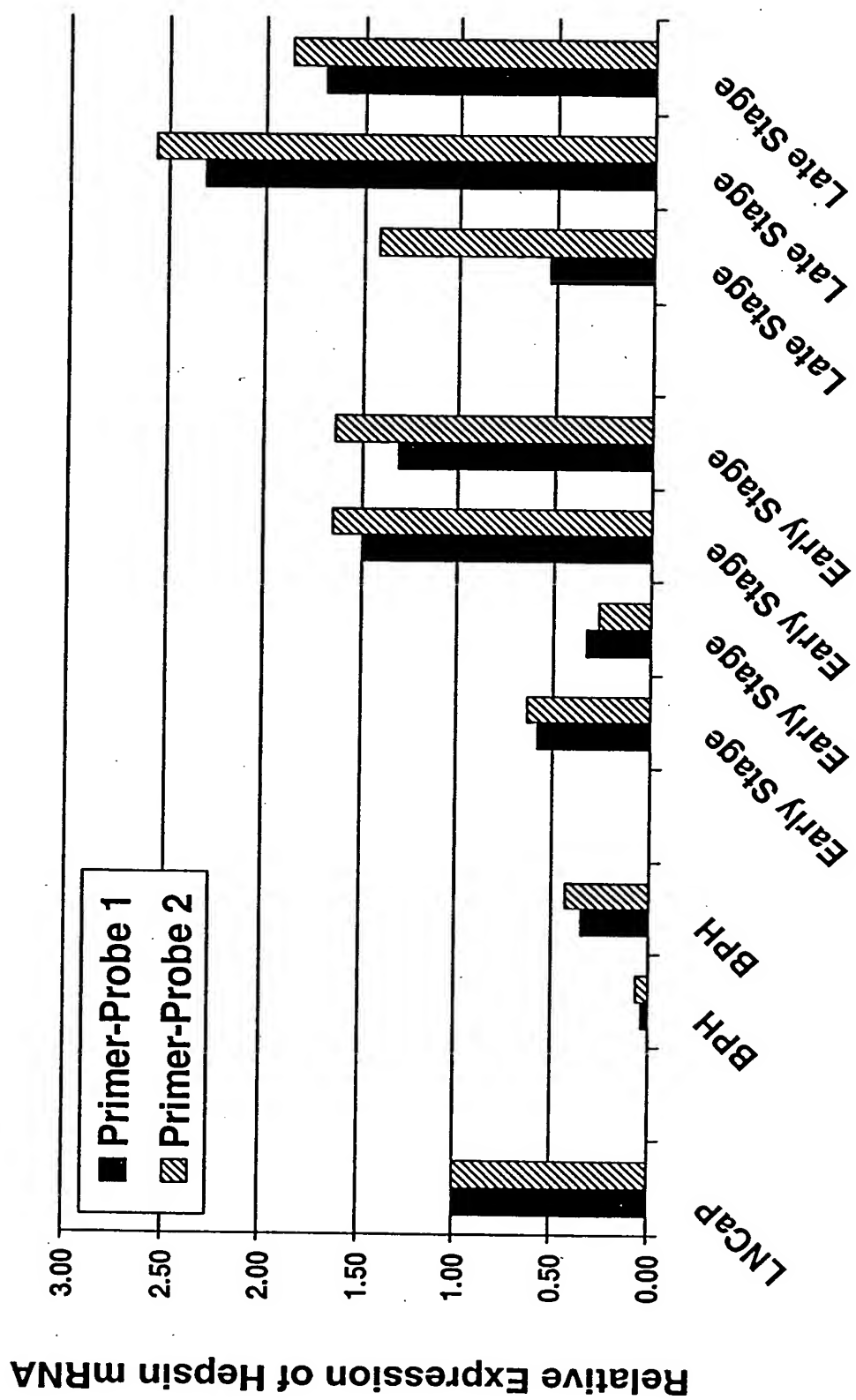


FIG. 4

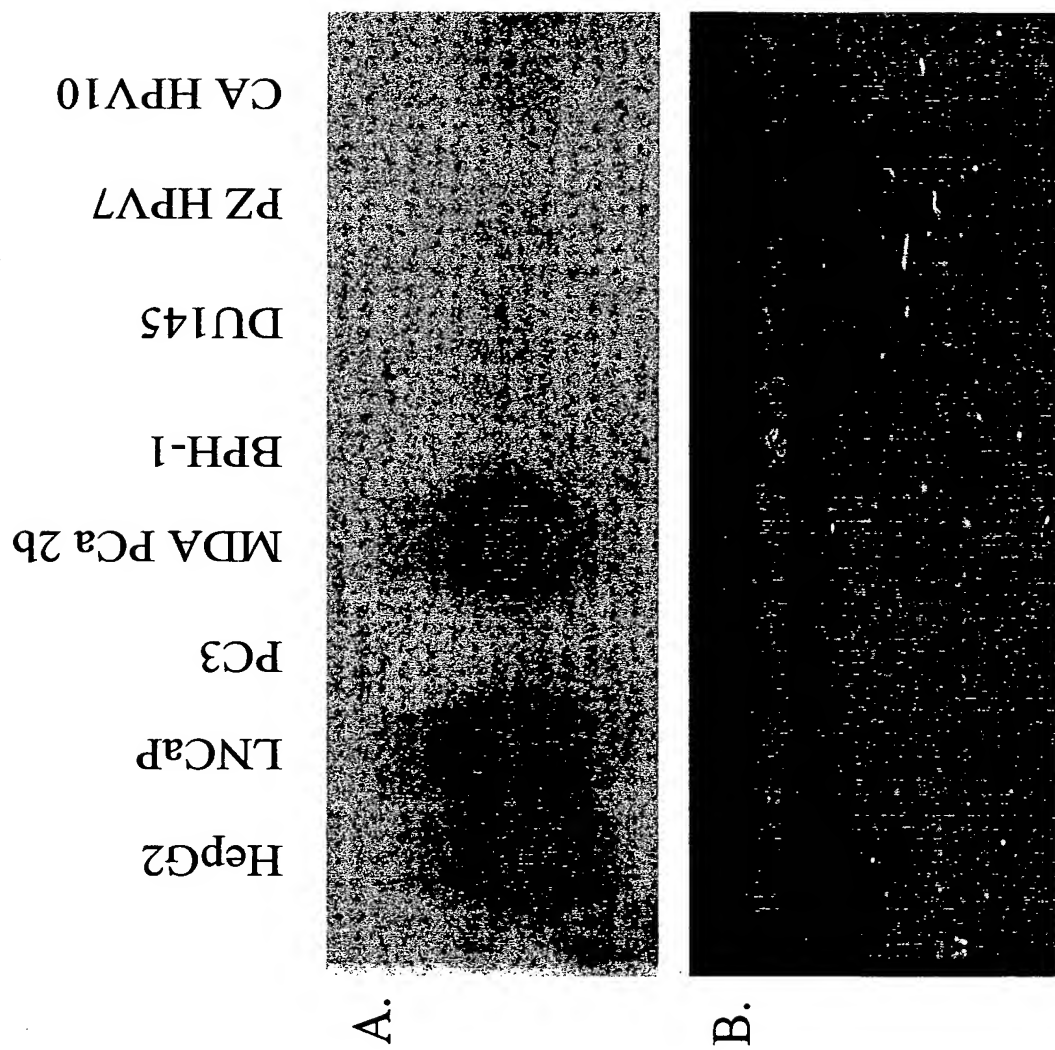


FIG. 6

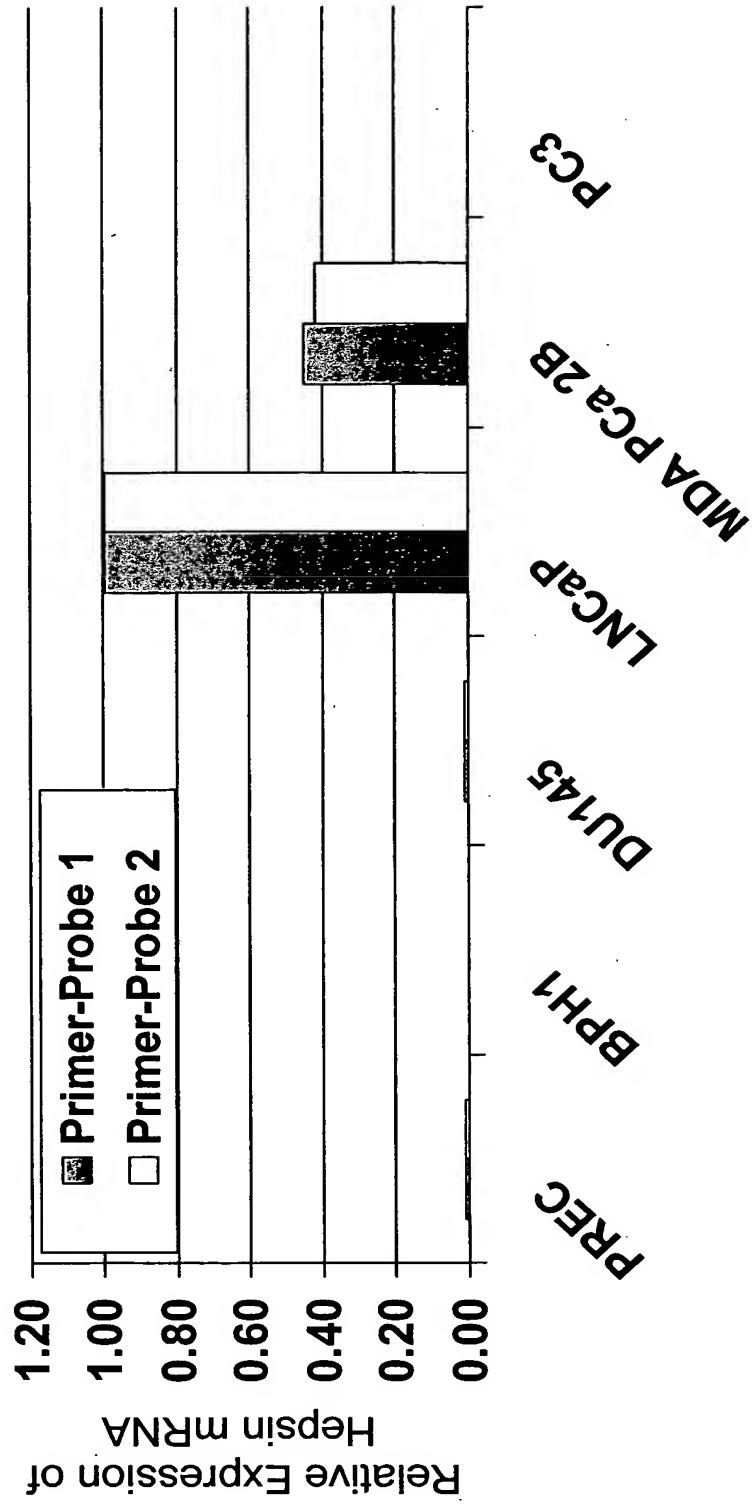


FIG. 7

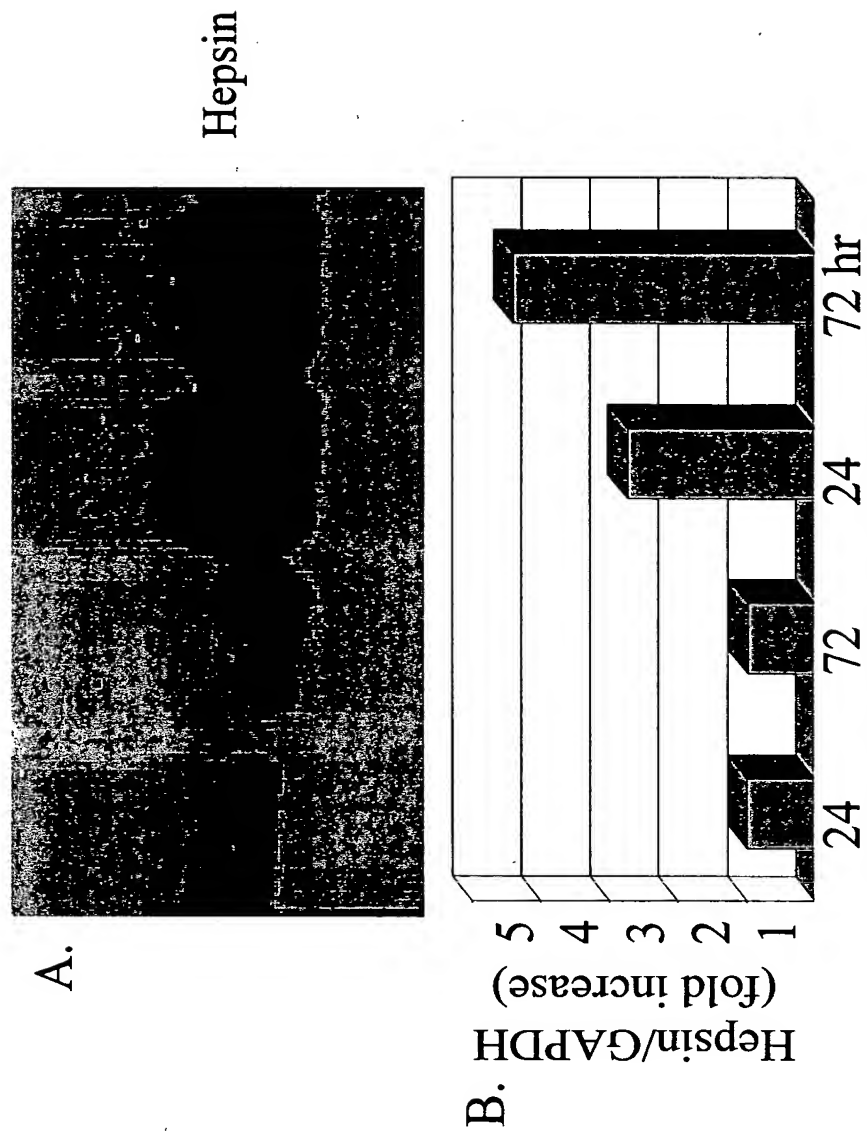


FIG. 8

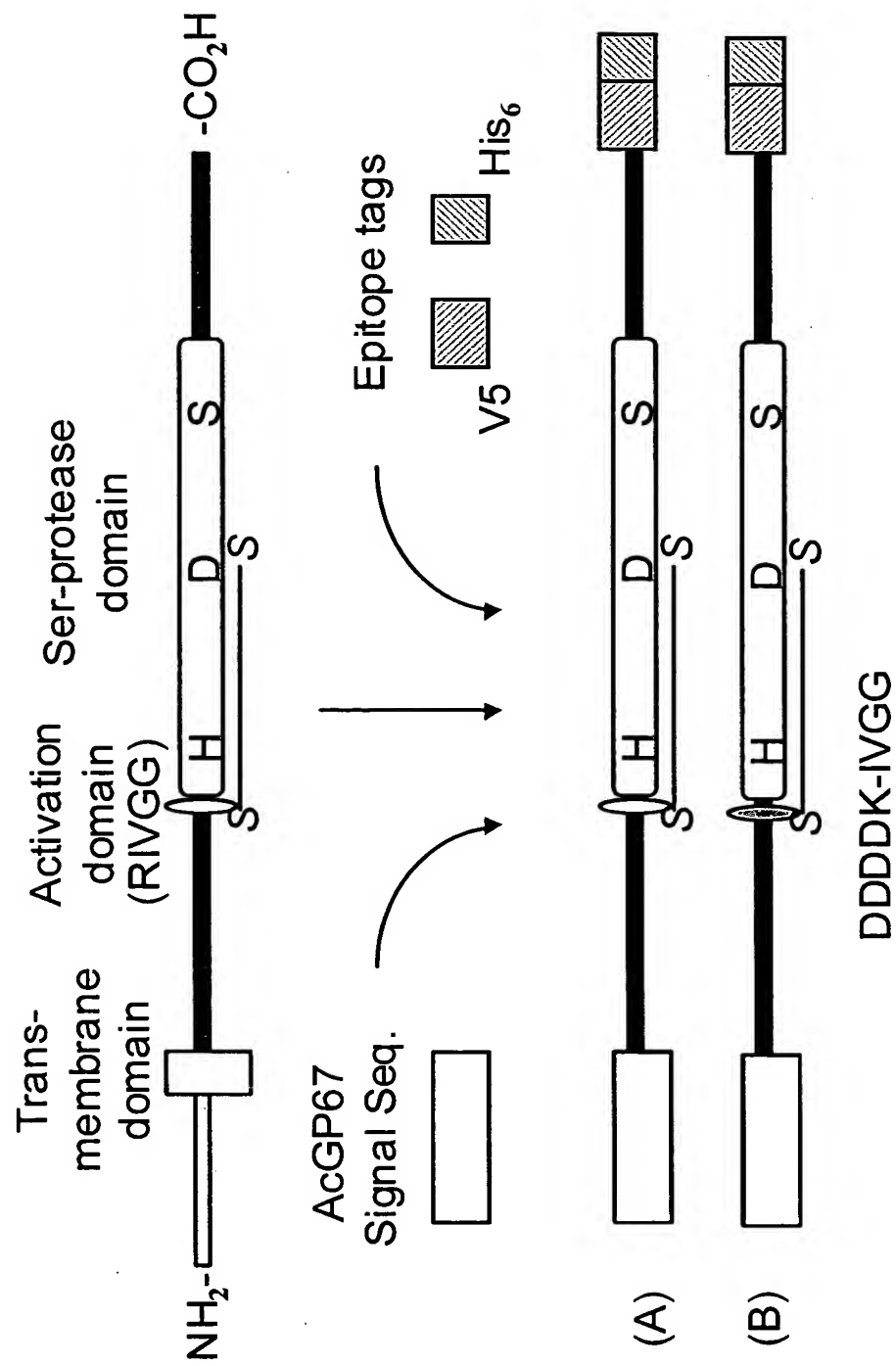


FIG. 9-1

pIRESpuro2W/hepEK_k

```

1  GACGGATCGG GAGATCTCCC GATCCCCTAT GGTGCGACTCT CAGTACAATC
   CTGCCTAGCC CTCTAGAGGG CTAGGGGATA CCAGCTGAGA GTCATGTTAG
51  TGCTCTGATG CCGCATAGTT AAGCCAGTAT CTGCTCCCTG CTTGTGTGTT
   ACGAGACTAC GCGGTATCAA TTCGGTCATA GACGAGGGAC GAACACACAA
101 GGAGGTCGCT GAGTAGTGCG CGAGCAAAAT TTAAGCTACA ACAAGGCAAG
   CCTCCAGCGA CTCATCACGC GCTCGTTTTA AATTCGATGT TGTTCGTTTC
151 GCTTGACCGA CAATTGCATG AAGAATCTGC TTAGGGTTAG GCGTTTTGCG
   CGAACTGGCT GTTAACGTAC TTCTTAGACG AATCCCAATC CGCAAAAACGC
201 CTGCTTCGCG ATGTACGGGC CAGATATACG CGTTGACATT GATTATTGAC
   GACGAAGCGC TACATGCCCC GTCTATATGC GCAACTGTAA CTAATAACTG
251 TAGTTATTAA TAGTAATCAA TTACGGGGTC ATTAGTTCAT AGCCCATATA
   ATCAATAATT ATCATTAGTT AATGCCCCAG TAATCAAGTA TCGGGTATAT
301 TGGAGTTCCG CGTTACATAA CTTACGGTAA ATGGCCCGCC TGGCTGACCG
   ACCTCAAGGC GCAATGTATT GAATGCCATT TACCGGGCGG ACCGACTGGC
351 CCCAACGACC CCCGCCCATT GACGTCAATA ATGACGTATG TTCCCATAGT
   GGGTTGCTGG GGGCGGGTAA CTGCAGTTAT TACTGCATAC AAGGGTATCA
401 AACGCCAATA GGGACTTTCC ATTGACGTCA ATGGGTGGAC TATTTACGGT
   TTGCGGTTAT CCCTGAAAGG TAACTGCAGT TACCCACCTG ATAAATGCCA
451 AAATGCCCCA CTTGGCAGTA CATCAAGTGT ATCATATGCC AAGTACGCCC
   TTTGACGGGT GAACCGTCAT GTAGTTCACA TAGTATACGG TTCATGCGGG
501 CCTATTGACG TCAATGACGG TAAATGGCCC GCCTGGCATT ATGCCCAGTA
   GGATAACTGC AGTTACTGCC ATTTACCGGG CGGACCGTAA TACGGGTCAT
551 CATGACCTTA TGGGACTTTC CTACTTGGCA GTACATCTAC GTATTAGTCA
   GTACTGGAAT ACCCTGAAAG GATGAACCGT CATGTAGATG CATAATCAGT
601 TCGCTATTAC CATGGTGATG CGGTTTTGGC AGTACATCAA TGGGCGTGGA
   AGCGATAATG GTACCACTAC GCCAAAACCG TCATGTAGTT ACCCGCACCT
651 TAGCGGTTTG ACTCACGGGG ATTTCCAAGT CTCCACCCCA TTGACGTCAA
   ATCGCCAAAC TGAGTGCCCC TAAAGGTTCA GAGGTGGGGT AACTGCAGTT
701 TGGGAGTTTG TTTTGGCACC AAAATCAACG GGACTTTCCA AAATGTTCGT
   ACCCTCAAAC AAAACCGTGG TTTTAGTTGC CCTGAAAGGT TTTACAGCAT
751 ACAACTCCGC CCCATTGACG CAAATGGGCG GTAGGCGTGT ACGGTGGGAG
   TGTTGAGGCG GGGTAACTGC GTTTACCGGC CATCCGCACA TGCCACCCTC
801 GTCTATATAA GCAGAGCTCT CTGGCTAACT AGAGAACCCA CTGCTTACTG
   CAGATATATT CGTCTCGAGA GACCGATTGA TCTCTTGGGT GACGAATGAC
851 GCTTATCGAA ATTAATACGA CTCACTATAG GGAGACCCAA GCTTGGTACC
   CGAATAGCTT TAATTATGCT GAGTGATATC CCTCTGGGTT CGAACCATGG
   +3      M E T D T L L L W
901 GAGCTCGGAT CGATATCGCC ACCATGGAGA CAGACACACT CCTGCTATGG
   CTCGAGCCTA GCTATAGCGG TGGTACCTCT GTCTGTGTGA GGACGATACC
   +3 V L L L W V P G S T G D A P D R S
951 GTACTGCTGC TCTGGGTTCC AGGTTCCACT GGTGACGCTC CGGACAGGAG
   CATGACGACG AGACCCAAGG TCCAAGGTGA CCACTGCGAG GCCTGTCCTC
   +3 S D Q E P L Y P V Q V S S A D A R L
1001 TGACCAGGAG CCGCTGTACC CAGTGCAGGT CAGCTCTGCG GACGCTCGGC
   ACTGGTCCTC GGCACATGG GTCACGTCCA GTCGAGACGC CTGCGAGCCG

```

FIG. 9-2

pIRESpuro2W/hepEK_k

```

+3  L M V F D K T E G T W R L L C S S
1051 TCATGGTCTT TGACAAGACG GAAGGGACGT GCGGCTGCT GTGCTCCTCG
    AGTACCAGAA ACTGTTCTGC CTTCCCTGCA CCGCCGACGA CACGAGGAGC
+3  R S N A R V A G L S C E E M G F L
1101 CGCTCTAACG CCAGGGTAGC CGGACTCAGC TGCGAGGAGA TGGGCTTCCT
    GCGAGATTGC GGTCCCATCG GCCTGAGTCG ACGCTCCTCT ACCCGAAGGA
+3  L R A L T H S E L D V R T A G A N G
1151 CAGGGCACTG ACCCACTCCG AGCTGGACGT GCGAACGGCG GCGGCCAATG
    GTCCCGTGAC TGGGTGAGGC TCGACCTGCA CGCTTGCCGC CCGCGGTTAC
+3  G T S G F F C V D E G R L P H T Q
1201 GCACGTGCGG CTTCTTCTGT GTGGACGAGG GGAGGCTGCC CCACACCAG
    CGTGCAGCCC GAAGAAGACA CACCTGCTCC CCTCCGACGG GGTGTGGGTC
+3  R L L E V I S V C D C P R G R F L
1251 AGGCTGCTGG AGGTCATCTC CGTGTGTGAT TGCCCCAGAG GCCGTTTCTT
    TCCGACGACC TCCAGTAGAG GCACACACTA ACGGGGTCTC CGGCAAAGAA
+3  L A A I C Q D C G R R K L P V D D D
1301 GGCCGCCATC TGCCAAGACT GTGGCCGCAG GAAGCTGCCC GTGGACGACG
    CCGGCGGTAG ACGGTTCTGA CACCGGCGTC CTTGACGGG CACCTGCTGC
+3  D D K I V G G R D T S L G R W P W
1351 ACGACAAGAT CGTGGGAGGC CGGGACACCA GCTTGGGCCG GTGGCCGTGG
    TGCTGTTCTA GCACCTCCG GCCCTGTGGT CGAACCCGGC CACCGGCACC
+3  Q V S L R Y D G A H L C G G S L L
1401 CAAGTCAGCC TTCGCTATGA TGGAGCACAC CTCTGTGGGG GATCCCTGCT
    GTTCAGTCGG AAGCGATACT ACCTCGTGTG GAGACACCCC CTAGGGACGA
+3  L S G D W V L T A A H C F P E R N R
1451 CTCCGGGGAC TGGGTGCTGA CAGCCGCCCA CTGCTTCCCG GAGCGGAACC
    GAGGCCCCTG ACCCAGACT GTCGGCGGGT GACGAAGGGC CTCGCCTTGG
+3  R V L S R W R V F A G A V A Q A S
1501 GGGTCCTGTC CCGATGGCGA GTGTTTGCCG GTGCCGTGGC CCAGGCCCTCT
    CCCAGGACAG GGCTACCGCT CACAAACGGC CACGGCACCG GGTCCGAGA
+3  P H G L Q L G V Q A V V Y H G G Y
1551 CCCACGGTC TGCAGCTGGG GGTGCAGGCT GTGGTCTACC ACGGGGGCTA
    GGGGTGCCAG ACGTCGACCC CCACGTCCGA CACCAGATGG TGCCCCGAT
+3  Y L P F R D P N S E E N S N D I A L
1601 TCTTCCCTTT CGGGACCCCA ACAGCGAGGA GAACAGCAAC GATATTGCCC
    AGAAGGGAAA GCCCTGGGGT TGTCGCTCCT CTTGTGCTTG CTATAACGGG
+3  L V H L S S P L P L T E Y I Q P V
1651 TGGTCCACCT CTCCAGTCCC CTGCCCCTCA CAGAATACAT CCAGCCTGTG
    ACCAGGTGGA GAGGTCAGGG GACGGGGAGT GTCTTATGTA GGTCCGACAC
+3  C L P A A G Q A L V D G K I C T V
1701 TGCCTCCAG CTGCCGGCCA GGCCCTGGTG GATGGCAAGA TCTGTACCGT
    ACGGAGGGTC GACGGCCGGT CCGGGACCAC CTACCGTTCT AGACATGGCA
+3  V T G W G N T Q Y Y G Q Q A G V L Q
1751 GACGGGCTGG GGCAACACGC AGTACTATGG CCAACAGGCC GGGGTACTCC
    CTGCCCCGACC CCGTTGTGCG TCATGATACC GGTTGTCCGG CCCCATGAGG

```

FIG. 9-3

pIRESpuro2W/hepEK_k

	+3	Q	E	A	R	V	P	I	I	S	N	D	V	C	N	G	A	D	
1801		AGGAGGCTCG	AGTCCCCATA	ATCAGCAATG	ATGTCTGCAA	TGGCGCTGAT		TCCTCCGAGC	TCAGGGTAT	TAGTCGTTAC	TACAGACGTT	ACCGCGACTA							
	+3	F	Y	G	N	Q	I	K	P	K	M	F	C	A	G	Y	P	E	
1851		TTCTATGGAA	ACCAGATCAA	GCCCAAGATG	TTCTGTGCTG	GCTACCCCGA		AAGATACCTT	TGGTCTAGTT	CGGGTTCTAC	AAGACACGAC	CGATGGGGCT							
	+3	E	G	G	I	D	A	C	Q	G	D	S	G	G	P	F	V	C	E
1901		GGGTGGCATT	GATGCCTGCC	AGGGCGACAG	CGGTGGTCCC	TTTGTGTGTG		CCCACCGTAA	CTACGGACGG	TCCCGCTGTC	GCCACCAGGG	AAACACACAC							
	+3	E	D	S	I	S	R	T	P	R	W	R	L	C	G	I	V	S	
1951		AGGACAGCAT	CTCTCGGACG	CCACGTGGGC	GGCTGTGTGG	CATTGTGAGT		TCCTGTGCGTA	GAGAGCCTGC	GGTGCAACCG	CCGACACACC	GTAACACTCA							
	+3	W	G	T	G	C	A	L	A	Q	K	P	G	V	Y	T	K	V	
2001		TGGGGCACTG	GCTGTGCCCT	GGCCCAGAAG	CCAGGCGTCT	ACACCAAAGT		ACCCCGTGAC	CGACACGGGA	CCGGGTCTTC	GGTCCGCAGA	TGTGGTTTCA							
	+3	V	S	D	F	R	E	W	I	F	Q	A	I	K	T	H	S	E	A
2051		CAGTGACTTC	CGGGAGTGGA	TCTTCCAGGC	CATAAAGACT	CACTCCGAAG		GTCACTGAAG	GCCCTCACCT	AGAAGGTCCG	GTATTTCTGA	GTGAGGCTTC							
	+3	A	S	G	M	V	T	Q	L	E	F	G	K	P	I	P	N	P	
2101		CCAGCGGCAT	GGTGACCCAG	CTCGAATTCG	GTAAGCCTAT	CCCTAACCCCT		GGTCGCCGTA	CCACTGGGTC	GAGCTTAAGC	CATTCGGATA	GGGATTGGGA							
	+3	L	L	G	L	D	S	T	R	T	G	H	H	H	H	H	H		
2151		CTCCTCGGTC	TCGATTCTAC	GCGTACCGGT	CATCATCACC	ATCACCATTG		GAGGAGCCAG	AGCTAAGATG	CGCATGGCCA	GTAGTAGTGG	TAGTGGTAAC							
2201		AGTTTAAAGC	GGCCGCATAG	ATAACTGATC	CAGTGTGCTG	GAATTAATTC		TCAAATTTTCG	CCGGCGTATC	TATTGACTAG	GTCACACGAC	CTTAATTAAG							
2251		GCTGTCTGCG	AGGGCCAGCT	GTTGGGGTGA	GTAATCCCTC	TCAAAGCCGG		CGACAGACGC	TCCCGGTCTGA	CAACCCCACT	CATGAGGGAG	AGTTTTTCGCC							
2301		GCATGACTTC	TGCGCTAAGA	TTGTCAAGTT	CCA AAAACGA	GGAGGATTG		CGTACTGAAG	ACGCGATTCT	AACAGTCAAA	GGTTTTTGCT	CCTCCTAAAC							
2351		ATATTCACCT	GGCCCGCGGT	GATGCCTTTG	AGGGTGGCCG	CGTCCATCTG		TATAAGTGGA	CCGGGCGCCA	CTACGGAAAC	TCCCACCGGC	GCAGGTAGAC							
2401		GTCAGAAAAG	ACAATCTTTT	TGTTGTCAAG	CTTGAGGTGT	GGCAGGCTTG		CAGTCTTTTC	TGTTAGAAAA	ACAACAGTTC	GAACTCCACA	CCGTCCGAAC							
2451		AGATCTGGCC	ATACACTTGA	GTGACAATGA	CATCCACTTT	GCCTTTCTCT		TCTAGACCGG	TATGTGAAC	CACTGTTACT	GTAGGTGAAA	CGGAAAGAGA							
2501		CCACAGGTGT	CCACTCCCAG	GTCCAATG	AGGTCGAGCA	TGCATCTAGG		GGTGTCACCA	GGTGAGGGTC	CAGGTTGACG	TCCAGCTCGT	ACGTAGATCC							
2551		GCGGCCAATT	CCGCCCCCTCT	CCCTCCCCC	CCCCTAACGT	TACTGGCCGA		CGCCGGTTAA	GGCGGGGAGA	GGGAGGGGGG	GGGGATTGCA	ATGACCGGCT							
2601		AGCCGCTTGG	AATAAGGCCG	GTGTGCGTTT	GTCTATATGT	GATTTTCCAC		TCGGCGAACC	TTATTCCGGC	CACACGCAA	CAGATATACA	CTAAAAGGTG							
2651		CATATTGCCG	TCTTTTGGCA	ATGTGAGGGC	CCGGAACCT	GGCCCTGTCT		GTATAACGGC	AGAAAACCGT	TACACTCCCG	GGCCTTTGGA	CCGGGACAGA							
2701		TCTTGACGAG	CATTCCTAGG	GGTCTTTCCC	CTCTCGCCAA	AGGAATGCAA		AGAACTGCTC	GTAAGGATCC	CCAGAAAGGG	GAGAGCGGTT	TCCTTACGTT							

FIG.9-4

pIRESpuro2W/hepEK_k

```

2751 GGTCTGTTGA ATGTCGTGAA GGAAGCAGTT CCTCTGGAAG CTTCTTGAAG
    CCAGACAAC TACAGCACTT CCTTCGTCAA GGAGACCTTC GAAGAACTTC
2801 ACAAACAACG TCTGTAGCGA CCCTTTGCAG GCAGCGGAAC CCCCCACCTG
    TGTTTGTTGC AGACATCGCT GGGAAACGTC CGTCGCCTTG GGGGGTGGAC
2851 GCGACAGGTG CCTCTGCGGC CAAAAGCCAC GTGTATAAGA TACACCTGCA
    CGCTGTCCAC GGAGACGCCG GTTTTCGGTG CACATATTCT ATGTGGACGT
2901 AAGGCGGCAC AACCCAGTG CCACGTGTG AGTTGGATAG TTGTGGAAAG
    TTCCGCCGTG TTGGGGTCAC GGTGCAACAC TCAACCTATC AACACCTTTC
2951 AGTCAAATGG CTCTCCTCAA GCGTATTCAA CAAGGGGCTG AAGGATGCCC
    TCAGTTTACC GAGAGGAGTT CGCATAAGTT GTTCCCCGAC TTCCTACGGG
3001 AGAAGGTACC CCATTGTATG GGATCTGATC TGGGGCCTCG GTGCACATGC
    TCTTCCATGG GGTAACATAC CTTAGACTAG ACCCCGGAGC CACGTGTACG
3051 TTTACATGTG TTTAGTCGAG GTTAAAAAAA CGTCTAGGCC CCCCAGACCA
    AAATGTACAC AAATCAGCTC CAATTTTTTT GCAGATCCGG GGGGCTTGGT
3101 CGGGGACGTG GTTTTCCTTT GAAAAACACG ATGATAAGCT TGCCACAACC
    GCCCCTGCAC CAAAAGGAAA CTTTTTGTGC TACTATTCTG ACGGTGTGTG
3151 CACAAGGAGA CGACCTTCCA TGACCGAGTA CAAGCCACG GTGCGCCTCG
    GTGTTCCTCT GCTGGAAGGT ACTGGCTCAT GTTCGGGTGC CACGCGGAGC
3201 CCACCCGCGA CGACGTCCCC CGGGCCGTAC GCACCCTCGC CGCCGCGTTC
    GGTGGGCGCT GCTGCAGGGG GCCCGGCATG CGTGGGAGCG GCGGCGCAAG
3251 GCCGACTACC CCGCCACGCG CCACACCGTC GACCCGGACC GCCACATCGA
    CGGCTGATGG GGCGGTGCGC GGTGTGGCAG CTGGGCCTGG CGGTGTAGCT
3301 GCGGGTCACC GAGCTGCAAG AACTCTTCCT CACGCGCGTC GGGCTCGACA
    CGCCCAGTGG CTCGACGTTT TTGAGAAGGA GTGCGCGCAG CCCGAGCTGT
3351 TCGGCAAGGT GTGGGTCGCG GACGACGGCG CCGCGGTGGC GGTCTGGACC
    AGCCGTTCCA CACCCAGCGC CTGCTGCCGC GCGGCCACCG CCAGACCTGG
3401 ACGCCGAGGA GCGTCGAAGC GGGGGCGGTG TTCGCCGAGA TCGGCCCCGCG
    TGCGGCCTCT CGCAGCTTCG CCCCCGCCAC AAGCGGCTCT AGCCGGGCGC
3451 CATGGCCGAG TTGAGCGGTT CCCGGCTGGC CGCGCAGCAA CAGATGGAAG
    GTACCGGCTC AACTCGCCAA GGGCCGACCG GCGCGTCGTT GTCTACCTTC
3501 GCCTCCTGGC GCCGCACCGG CCCAAGGAGC CCGCGTGGTT CCTGGCCACC
    CGGAGGACCG CGGCGTGGCC GGGTTCCTCG GCGGCACCAA GGACCGGTGG
3551 GTCGGCGTCT CGCCCGACCA CCAGGGCAAG GGTCTGGGCA GCGCCGTCGT
    CAGCCGCAGA GCGGGCTGGT GGTCCCGTTC CCAGACCCGT CCGGCGAGCA
3601 GCTCCCCGGA GTGGAGGCGG CCGAGCGCGC CGGGGTGCCC GCCTTCCTGG
    CGAGGGGCCT CACCTCCGCC GGCTCGCGCG GCCCCACGGG CGGAAGGACC
3651 AGACCTCCGC GCCCCGCAAC CTCCCCCTCT ACGAGCGGCT CGGCTTCACC
    TCTGGAGGCG CGGGGCGTTG GAGGGGAAGA TGCTCGCCGA GCCGAAGTGG
3701 GTCACCGCCG ACGTCGAGTG CCCGAAGGAC CGCGCGACCT GGTGCATGAC
    CAGTGGCGGC TGCAGCTCAC GGGCTTCCTG GCGCGCTGGA CCACGTACTG
3751 CCGCAAGCCC GGTGCCTGAC GCCCGCCCCA CGACCCGACG CGCCGACCG
    GGCCTTCGGG CCACGGACTG CGGGCGGGGT GCTGGGCGTC GCGGGCTGGC
3801 AAAGGAGCGC ACGACCCCAT GGCTCCGACC GAAGCCGACC CGGGCGGCCC
    TTTCTTCGCG TGCTGGGGTA CCGAGGCTGG CTTCGGCTGG GCCCGCCGGG
3851 CGCCGACCCC GCACCCGCCC CCGAGGCCCA CCGACTCTAG ACTCGAGATC
    GCGGCTGGGG CGTGGGCGGG GGCTCCGGGT GGCTGAGATC TGAGCTCTAG

```

FIG. 9-5

pIRESpuro2W/hepEK_k

```

3901  GATAATCAAC CTCTGGATTA CAAAATTTGT GAAAGATTGA CTGGTATTCT
      CTATTAGTTG GAGACCTAAT GTTTTAAACA CTTTCTAACT GACCATAAGA
3951  TAACTATGTT GCTCCTTTTA CGCTATGTGG ATACGCTGCT TTAATGCCTT
      ATTGATACAA CGAGGAAAAT GCGATACACC TATGCGACGA AATTACGGAA
4001  TGTATCATGC TATTGCTTCC CGTATGGCTT TCATTTTCTC CTCCTTGTAT
      ACATAGTACG ATAACGAAGG GCATACCGAA AGTAAAAGAG GAGGAACATA
4051  AAATCCTGGT TGCTGTCTCT TTATGAGGAG TTGTGGCCCC TTGTCAGGCA
      TTTAGGACCA ACGACAGAGA AATACTCCTC AACACCGGGC AACAGTCCGT
4101  ACGTGGCGTG GTGTGCACTG TGTTTGCTGA CGCAACCCCC ACTGGTTGGG
      TGCACCGCAC CACACGTGAC ACAAACGACT GCGTTGGGGG TGACCAACCC
4151  GCATTGCCAC CACCTGTCAG CTCCTTTCCG GGACTTTTCG TTTCCCCCTC
      CGTAACGGTG GTGGACAGTC GAGGAAAGGC CCTGAAAGCG AAAGGGGGAG
4201  CCTATTGCCA CGGCGGAACT CATCGCCGCC TGCCTTGCCC GCTGCTGGAC
      GGATAACGGT GCCGCCTTGA GTAGCGGCGG ACGGAACGGG CGACGACCTG
4251  AGGGGCTCGG CTGTTGGGCA CTGACAATTC CGTGGTGTTG TCGGGGAAAT
      TCCCCGAGCC GACAACCCGT GACTGTTAAG GCACCACAAC AGCCCCTTTA
4301  CATCGTCCTT TCCTTGGCTG CTCGCCTGTG TTGCCACCTG GATTCTGCGC
      GTAGCAGGAA AGGAACCGAC GAGCGGACAC AACGGTGGAC CTAAGACGCG
4351  GGGACGTCCT TCTGCTACGT CCCTTCGGCC CTCAATCCAG CGGACCTTCC
      CCTTGCAGGA AGACGATGCA GGGGAAGCCG GAGTTAGGTC GCCTGGAAGG
4401  TTCCCGCGGC CTGCTGCCGG CTCTGCCGCC TCTTCCGCGT CTTGCGCTTC
      AAGGGCGCCG GACGACGGCC GAGACGCCGG AGAAGGCGCA GAAGCGGAAG
4451  GCCCTCAGAC GAGTCGGATC TCCCTTTGGG CCGCCTCCCC GCCTGATCGA
      CGGGAGTCTG CTCAGCCTAG AGGGAAACCC GCGGAGGGG CGGACTAGCT
4501  TCTAGAGCTC GCTGATCAGC CTCGACTGTG CCTTCTAGTT GCCAGCCATC
      AGATCTCGAG CGACTAGTCG GAGCTGACAC GGAAGATCAA CGGTGCGTAG
4551  TGTGTGTTGC CCCTCCCCCG TGCCTTCCTT GACCCTGGAA GGTGCCACTC
      ACAACAAACG GGGAGGGGGC ACGGAAGGAA CTGGGACCTT CCACGGTGAG
4601  CCACTGTCCT TTCCTAATAA AATGAGGAAA TTGCATCGCA TTGTCTGAGT
      GGTGACAGGA AAGGATTATT TTAATCCTTT AACGTAGCGT AACAGACTCA
4651  AGGTGTCATT CTATTCTGGG GGGTGGGGTG GGGCAGGACA GCAAGGGGGA
      TCCACAGTAA GATAAGACCC CCCACCCAC CCCGTCCTGT CGTTCCCCCT
4701  GGATTGGGAA GACAATAGCA GGCATGCTGG GGATGCGGTG GGCTCTATGG
      CCTAACCCTT CTGTTATCGT CCGTACGACC CCTACGCCAC CCGAGATACC
4751  CTTCTGAGGC GGAAAGAACC AGCTGGGGCT CGAGTGCATT CTAGTTGTGG
      GAAGACTCCG CCTTCTTTGG TCGACCCCGA GCTCACGTAA GATCAACACC
4801  TTTGTCCAAA CTCATCAATG TATCTTATCA TGTCTGTATA CCGTCGACCT
      AAACAGGTTT GAGTAGTTAC ATAGAATAGT ACAGACATAT GGCAGCTGGA
4851  CTAGCTAGAG CTTGGCGTAA TCATGGTCAT AGCTGTTTCC TGTGTGAAAT
      GATCGATCTC GAACCGCATT AGTACCAGTA TCGACAAAGG ACACACTTTA
4901  TGTTATCCGC TCACAATTCC ACACAACATA CGAGCCGGAA GCATAAAGTG
      ACAATAGGCG AGTGTTAAGG TGTGTTGTAT GCTCGGCCTT CGTATTTTAC
4951  TAAAGCCTGG GGTGCCTAAT GAGTGAGCTA ACTCACATTA ATTGCGTTGC
      ATTTTCGGACC CCACGGATTA CTCACTCGAT TGAGTGTAAT TAACGCAACG
5001  GCTCACTGCC CGCTTTCCAG TCGGGAAACC TGTCGTGCCA GCTGCATTAA
      CGAGTGACGG GCGAAAGGTC AGCCCTTTGG ACAGCACGGT CGACGTAATT

```

FIG. 9-6

pIRESpuro2W/hepEK_k

```

5051 TGAATCGGCC AACGCGCGGG GAGAGGCGGT TTGCGTATTG GGCGCTCTTC
      ACTTAGCCGG TTGCGCGCCC CTCTCCGCCA AACGCATAAC CCGCGAGAAG
5101 CGCTTCCTCG CTCACTGACT CGCTGCGCTC GGTCGTTCGG CTGCGGCGAG
      GCGAAGGAGC GAGTGACTGA GCGACGCGAG CCAGCAAGCC GACGCCGCTC
5151 CGGTATCAGC TCACTCAAAG GCGGTAATAC GGTATATCCAC AGAATCAGGG
      GCCATAGTCG AGTGAGTTTC CGCCATTATG CCAATAGGTG TCTTAGTCCC
5201 GATAACGCAG GAAAGAACAT GTGAGCAAAA GGCCAGCAAA AGGCCAGGAA
      CTATTGCGTC CTTTCTTGTA CACTCGTTTT CCGGTCGTTT TCCGGTCCTT
5251 CCGTAAAAAG GCCGCGTTGC TGGCGTTTTT CCATAGGCTC CGCCCCCTG
      GGCATTTTTT CGGCGCAACG ACCGCAAAAA GGTATCCGAG GCGGGGGGAC
5301 ACGAGCATCA CAAAAATCGA CGCTCAAGTC AGAGGTGGCG AAACCCGACA
      TGCTCGTAGT GTTTTTAGCT GCGAGTTCAG TCTCCACCGC TTTGGGCTGT
5351 GGA CTATAAA GATACCAGGC GTTTCCTCCCT GGAAGCTCCC TCGTGCGCTC
      CCTGATATTT CTATGGTCCG CAAAGGGGGA CCTTCGAGGG AGCACGCGAG
5401 TCCTGTTCCG ACCCTGCCGC TTACCGGATA CCTGTCCGCC TTTCTCCCTT
      AGGACAAGGC TGGGACGGCG AATGGCCTAT GGACAGGCGG AAAGAGGGAA
5451 CGGGAAGCGT GCGCCTTTCT CAATGCTCAC GCTGTAGGTA TCTCAGTTCTG
      GCCCTTCGCA CCGCGAAAGA GTTACGAGTG CGACATCCAT AGAGTCAAGC
5501 GTGTAGGTCG TTCGCTCCAA GCTGGGCTGT GTGCACGAAC CCCCCTTCA
      CACATCCAGC AAGCGAGGTT CGACCCGACA CACGTGCTTG GGGGGCAAGT
5551 GCCCGACCGC TGCGCCTTAT CCGGTAAC TA TCGTCTTGAG TCCAACCCGG
      CGGGCTGGCG ACGCGGAATA GGCCATTGAT AGCAGAACTC AGGTTGGGCC
5601 TAAGACACGA CTTATCGCCA CTGGCAGCAG CCACTGGTAA CAGGATTAGC
      ATTCTGTGCT GAATAGCGGT GACCGTCGTC GGTGACCATT GTCCTAATCG
5651 AGAGCGAGGT ATGTAGGCGG TGCTACAGAG TTCTTGAAGT GGTGGCCTAA
      TCTCGCTCCA TACATCCGCC ACGATGTCTC AAGAACTTCA CCACCGGATT
5701 CTACGGCTAC ACTAGAAGGA CAGTATTTGG TATCTGCGCT CTGCTGAAGC
      GATGCCGATG TGATCTTCCT GTCATAAACC ATAGACGCGA GACGACTTCG
5751 CAGTTACCTT CGGAAAAAGA GTTGGTAGCT CTTGATCCGG CAAACAAACC
      GTCAATGGAA GCCTTTTTCT CAACCATCGA GAACTAGGCC GTTTGTTTGG
5801 ACCGCTGGTA GCGGTGGTTT TTTTGTGTTG AAGCAGCAGA TTACGCGCAG
      TGGCGACCAT CGCCACCAA AAAACAAACG TTCGTCTGCT AATGCGCGTC
5851 AAAAAAGGA TCTCAAGAAG ATCCTTTGAT CTTTCTACG GGGTCTGACG
      TTTTTTCTCT AGAGTTCTTC TAGGAAACTA GAAAAGATGC CCCAGACTGC
5901 CTCAGTGGAA CGAAACTCA CGTTAAGGGA TTTTGGTCAT GAGATTATCA
      GAGTACCTT GCTTTTGAGT GCAATTCCCT AAAACCAGTA CTCTAATAGT
5951 AAAAGGATCT TCACCTAGAT CCTTTTAAAT TAAAAATGAA GTTTTAAATC
      TTTTCCTAGA AGTGGATCTA GGAAAATTTA ATTTTACTT CAAAATTTAG
6001 AATCTAAAGT ATATATGAGT AAACCTGGTC TGACAGTTAC CAATGCTTAA
      TTAGATTTCA TATATACTCA TTTGAACCAG ACTGTCAATG GTTACGAATT
6051 TCAGTGAGGC ACCTATCTCA GCGATCTGTC TATTTCTGTT ATCCATAGTT
      AGTCACTCCG TGGATAGAGT CGCTAGACAG ATAAAGCAAG TAGGTATCAA
6101 GCCTGACTCC CCGTCGTGTA GATAACTACG ATACGGGAGG GCTTACCATC
      CGGACTGAGG GGCAGCACAT CTATTGATGC TATGCCCTCC CGAATGGTAG
6151 TGGCCCCAGT GCTGCAATGA TACCGCGAGA CCCACGCTCA CCGGCTCCAG
      ACCGGGGTCA CGACGTTACT ATGGCGCTCT GGGTGCGAGT GGCCGAGGTC

```

FIG. 9-7

pIRESpuro2W/hepEK_k

```

6201  ATTTATCAGC  AATAAACCCAG  CCAGCCGGAA  GGGCCGAGCG  CAGAAGTGGT
      TAAATAGTCG  TTATTTGGTC  GGTCGGCCTT  CCCGGCTCGC  GTCTTCACCA
6251  CCTGCAACTT  TATCCGCCTC  CATCCAGTCT  ATTAATTGTT  GCCGGAAGC
      GGACGTTGAA  ATAGGCGGAG  GTAGGTCAGA  TAATTAACAA  CGGCCCCTCG
6301  TAGAGTAAGT  AGTTCGCCAG  TTAATAGTTT  GCGCAACGTT  GTTGCCATTG
      ATCTCATTCA  TCAAGCGGTC  AATTATCAAA  CGCGTTGCAA  CAACGGTAAC
6351  CTACAGGCAT  CGTGGTGTCA  CGCTCGTCGT  TTGGTATGGC  TTCATTACAGC
      GATGTCCGTA  GCACCACAGT  GCGAGCAGCA  AACCATACCG  AAGTAAGTCG
6401  TCCGGTTCCT  AACGATCAAG  GCGAGTTACA  TGATCCCCCA  TGTGTGCAA
      AGGCCAAGGG  TTGCTAGTTC  CGCTCAATGT  ACTAGGGGGT  ACAACACGTT
6451  AAAAGCGGTT  AGCTCCTTCG  GTCCTCCGAT  CGTTGTCAGA  AGTAAGTTGG
      TTTTCGCCAA  TCGAGGAAGC  CAGGAGGCTA  GCAACAGTCT  TCATTCAACC
6501  CCGCAGTGTT  ATCACTCATG  GTTATGGCAG  CACTGCATAA  TTCTCTTACT
      GGCGTCACAA  TAGTGAGTAC  CAATACCGTC  GTGACGTATT  AAGAGAATGA
6551  GTCATGCCAT  CCGTAAGATG  CTTTCTGTG  ACTGGTGAGT  ACTCAACCAA
      CAGTACGGTA  GGCATTCTAC  GAAAAGACAC  TGACCACTCA  TGAGTTGGTT
6601  GTCATTCTGA  GAATAGTGTA  TCGGGCGACC  GAGTTGCTCT  TGCCCGGCGT
      CAGTAAGACT  CTTATCACAT  ACGCCGCTGG  CTCAACGAGA  ACGGGCCGCA
6651  CAATACGGGA  TAATACCGCG  CCACATAGCA  GAACTTTAAA  AGTGCTCATC
      GTTATGCCCT  ATTATGGCGC  GGTGTATCGT  CTTGAAATTT  TCACGAGTAG
6701  ATTGGAAAAC  GTTCTTCGGG  GCGAAAACCT  TCAAGGATCT  TACCGCTGTT
      TAACCTTTTG  CAAGAAGCCC  CGCTTTTGAG  AGTTCCTAGA  ATGGCGACAA
6751  GAGATCCAGT  TCGATGTAAC  CCACTCGTGC  ACCCAACTGA  TCTTCAGCAT
      CTCTAGGTCA  AGCTACATTG  GGTGAGCACG  TGGGTTGACT  AGAAGTCGTA
6801  CTTTACTTTT  CACCAGCGTT  TCTGGGTGAG  CAAAAACAGG  AAGGCAAAAT
      GAAAATGAAA  GTGGTCGCAA  AGACCCACTC  GTTTTGTGCC  TTCCGTTTTA
6851  GCCGCAAAAA  AGGGAATAAG  GCGACACGG  AAATGTTGAA  TACTCATACT
      CGGCGTTTTT  TCCCTTATTC  CCGCTGTGCC  TTTACAACCT  ATGAGTATGA
6901  CTTCCTTTTT  CAATATTATT  GAAGCATTTA  TCAGGGTTAT  TGTCTCATGA
      GAAGGAAAAA  GTTATAATAA  CTTCGTAAAT  AGTCCCAATA  ACAGAGTACT
6951  GCGGATACAT  ATTTGAATGT  ATTTAGAAAA  ATAAACAAAT  AGGGGTTCCG
      CGCCTATGTA  TAAACTTACA  TAAATCTTTT  TATTTGTTTA  TCCCCAAGGC
7001  CGCACATTTT  CCCGAAAAGT  GCCACCTGAC  GTC
      GCGTGTAAG  GGGCTTTTCA  CGGTGGACTG  CAG

```

FIG. 10-1

pCEP4W/hepEK

```

1  TCGAGCGGCC GCTTTAACT CAATGGTGAT GGTGATGATG ACCGGTACGC
   AGCTCGCCCG CGAAATTGA GTTACCACTA CCACTACTAC TGGCCATGCG
-3      H H H H H H G T R T
51  GTAGAATCGA GACCGAGGAG AGGGTTAGGG ATAGGCTTAC CGAATTCGAG
   CATCTTAGCT CTGGCTCCTC TCCCAATCCC TATCCGAATG GCTTAAGCTC
-3  T S D L G L L P N P I P K G F E L
101 CTGGGTCACC ATGCCGCTGG CTTCCGAGTG AGTCTTTATG GCCTGGAAGA
   GACCCAGTGG TACGGCGACC GAAGCCTCAC TCAGAAATAC CGGACCTTCT
-3  Q T V M G S A E S H T K I A Q F I
151 TCCACTCCCG GAAGTCACTG ACTTTGGTGT AGACGCCTGG CTTCTGGGCC
   AGGTGAGGGC CTTCAGTGAC TGAAACCACA TCTGCGGACC GAAGACCCGG
-3  I W E R F D S V K T Y V G P K Q A L
201 AGGGCACAGC CAGTGCCCCA ACTCACAATG CCACACAGCC GCCAACGTGG
   TCCCGTGTCG GTCACGGGGT TGAGTGTTAC GGTGTGTCGG CGGTGTCACC
-3  L A C G T G W S V I G C L R W R P
251 CGTCCGAGAG ATGCTGTCCT CACACACAAA GGGACCACCG CTGTCGCCCT
   GCAGGCTCTC TACGACAGGA GTGTGTGTTT CCCTGGTGCG GACAGCGGGA
-3  T R S I S D E C V F P G G S D G Q
301 GGCAGGCATC AATGCCACCC TCGGGGTAGC CAGCACAGAA CATCTTGGGC
   CCGTCCGTAG TTACGGTGGG AGCCCATCG GTCGTGCTTT GTAGAACCCG
-3  Q C A D I G G E P Y G A C F M K P K
351 TTGATCTGGT TTCCATAGAA ATCAGCGCCA TTGCAGACAT CATTGCTGAT
   AACTAGACCA AAGGTATCTT TAGTCGCGGT AACGTCTGTA GTAACGACTA
-3  K I Q N G Y F D A G N C V D N S I
401 TATGGGGACT CGAGCCTCCT GGAGTACCCC GGCCTGTTGG CCATAGTACT
   ATACCCCTGA GCTCGGAGGA CCTCATGGGG CCGGACAACC GGTATCATGA
-3  I P V R A E Q L V G A Q Q G Y Y Q
451 GCGTGTGCCC CCAGCCCGTC ACGGTACAGA TCTTGCCATC CACCAGGGCC
   CGCACACGG GGTGCGGCAG TGCCATGTCT AGAACGGTAG GTGGTCCCGG
-3  Q T N G W G T V T C I K G D V L A Q
501 TGGCCGGCAG CTGGGAGGCA CACAGGCTGG ATGTATTCTG TGAGGGGCAG
   ACCGGCCGTC GACCTCCGT GTGTCCGACC TACATAAGAC ACTCCCCGTC
-3  Q G A A P L C V P Q I Y E T L P L
551 GGGACTGGAG AGGTGGACCA GGGCAATATC GTTGCTGTTT TCCTCGCTGT
   CCCTGACCTC TCCACCTGGT CCCGTTATAG CAACGACAAG AGGAGCGACA
-3  P S S L H V L A I D N S N E E S N
601 TGGGGTCCCG AAAGGGAAGA TAGCCCCCGT GGTAGACCAC AGCCTGCACC
   ACCCCAGGGC TTTCCCTTCT ATCGGGGGCA CCATCTGGTG TCGGACGTGG
-3  N P D R F P L Y G G H Y V V A Q V G
651 CCCAGCTGCA GACCGTGGGG AGAGGCCTGG GCCACGGCAC CGGCAAACAC
   GGGTCGACGT CTGGCACCCC TCTCCGGACC CGGTGCCCGTG GCCGTTTGTG
-3  G L Q L G H P S A Q A V A G A F V
701 TCGCCATCGG GACAGGACCC GGTTCGCTC CGGGAAGCAG TGGGCGGCTG
   AGCGGTAGCC CTGTCCTGGG CCAAGGCGAG GCCCTTCGTC ACCCGCCGAC
-3  R W R S L V R N R E P F C H A A T

```

FIG. 10-2

pCEP4W/hepEK

```

751 TCAGCACCCA GTCCCCGGAG AGCAGGGATC CCCCACAGAG GTGTGCTCCA
    AGTCGTGGGT CAGGGGCCTC TCGTCCCTAG GGGGTGTCTC CACACGAGGT
-3 T L V W D G S L L S G G C L H A G D
801 TCATAGCGAA GGCTGACTTG CCACGGCCAC CGGCCCAAGC TGGTGTCCCG
    AGTATCGCTT CCGACTGAAC GGTGCCGGTG GCCGGGTTCG ACCACAGGGC
-3 D Y R L S V Q W P W R G L S T D R
851 GCCTCCCACG ATCTTGTCGT CGTCGTCCAC GGCAGCTTC CTGCGGCCAC
    CGGAGGGTGC TAGAACAGCA GCAGCAGGTG CCCGTCGAAG GACGCCGGTG
-3 G G V I K D D D D V P L K R R G C
901 AGTCTTGGCA GATGGCGGCC AAGAAACGGC CTCTGGGGCA ATCACACACG
    TCAGAACCGT CTACCGCCGG TTCTTTGCCG GAGACCCCGT TAGTGTGTGC
-3 C D Q C I A A L F R G R P C D C V S
951 GAGATGACCT CCAGCAGCCT CTGGGTGTGG GGCAGCCTCC CCTCGTCCAC
    CTCTACTGGA GGTTCGTCGGA GACCCACACC CCGTCGGAGG GGAGCAGGTG
-3 S I V E L L R Q T H P L R G E D V
1001 ACAGAAGAAG CCCGACGTGC CATTGGCGCC CGCCGTTCGC ACGTCCAGCT
    TGTCTTCTTC GGGCTGCACG GTAACCGCGG GCGGCAAGCG TGCAGGTGCA
-3 C F F G S T G N A G A T R V D L E
1051 CGGAGTGGGT CAGTGCCCTG AGGAAGCCCA TCTCCTCGCA GCTGAGTCCG
    GCCTCACCCA GTCACGGGAC TCCTTCGGGT AGAGGAGCGT CGACTCAGGC
-3 E S H T L A R L F G M E E C S L G A
1101 GCTACCCTGG CGTTAGAGCG CGAGGAGCAC AGCAGCCGCC ACGTCCCTTC
    CGATGGGACC GCAATCTCGC GCTCCTCGTG TCGTCGGCGG TGCAGGGAAG
-3 A V R A N S R S S C L L R W T G E
1151 CGTCTTGTC AAGACCATGA GCCGAGCGTC CGCAGAGCTG ACCTGCACTG
    GCAGAACAGT TTCTGGTACT CGGCTCGCAG GCGTCTCGAC TGGACGTGAC
-3 T K D F V M L R A D A S S V Q V P
1201 GGTACAGCGG CTCCTGGTCA CTCCTATCCG GAGCGTCACC AGTGGAACTT
    CCATGTCGCC GAGGACCAGT GAGGATAGGC CTCGCACTGG TCACCTTGA
-3 P Y L P E Q D S R D P A D G T S G P
1251 GGAACCCAGA GCAGCAGTAC CCATAGCAGG AGTGTGTCTG TCTCCATGGT
    CCTTGGGTCT CGTCGTCATG GGTATCGTCC TCACACAGAC AGAGGTACCA
-3 P V W L L L V W L L L T D T E M
1301 GGCATCTGG TACCCAGCTT CTAGAGATCT GACGGTTCAC TAAACGAGCT
    CCGCTAGACC ATGGGTCGAA GATCTCTAGA CTGCCAAGTG ATTTGCTCGA
1351 CTGCTTATAT AGACCTCCCA CCGTACACGC CTACCGCCCA TTTGCGTCAA
    GACGAATATA TCTGGAGGGT GGCATGTGCG GATGGCGGGT AAACGCAGTT
1401 CGGGGCGGGG TTATTACGAC ATTTTGGAAA GTCCCGTTGA TTTTGGTGCC
    GCCCCGCCCC AATAATGCTG TAAAACCTTT CAGGGCAACT AAAACCACGG
1451 AAAACAACT CCCATTGACG TCAATGGGGT GGAGACTTGG AAATCCCCGT
    TTTTGTTTGA GGGTAACTGC AGTTACCCCA CCTCTGAACC TTAGGGGCA
1501 GAGTCAAACC GCTATCCACG CCCATTGGTG TACTGCCAAA ACCGCATCAC
    CTCAGTTTGG CGATAGGTGC GGGTAACCAC ATGACGGTTT TGGCGTAGTG
1551 CATGGTAATA GCGATGACTA ATACGTAGAT GTACTGCCAA GTAGGAAAGT
    GTACCATTAT CGCTACTGAT TATGCATCTA CATGACGGTT CATCCTTTCA

```

FIG. 10-3

pCEP4W/hepEK

```

1601  CCCGTAAGGT CATGTACTGG GCATAATGCC AGGCGGGCCA TTTACCGTCA
      GGGCATTCCA GTACATGACC CGTATTACGG TCCGCCCAGT AAATGGCAGT
1651  TTGACGTCAA TAGGGGGCGG ACTTGGCATA TGATACACTT GATGTACTGC
      AACTGCAGTT ATCCCCCGCC TGAACCGTAT ACTATGTGAA CTACATGACG
1701  CAAGTGGGCA GTTTACCGTA AATACTCCAC CCATTGACGT CAATGGAAAG
      GTTCACCCGT CAAATGGCAT TTATGAGGTG GGTAAGTGCA GTTACCTTTC
1751  TCCCTATTGG CGTTACTATG GGAACATACG TCATTATTGA CGTCAATGGG
      AGGGATAACC GCAATGATAC CCTTGTATGC AGTAATAACT GCAGTTACCC
1801  CGGGGGTCGT TGGGCGGTCA GCCAGGCGGG CCATTTACCG TAAGTTATGT
      GCCCCAGCA ACCCGCCAGT CGGTCCGCCC GGTAAGTGCA ATTCAATACA
1851  AACGCGGAAC TCCATATATG GGCTATGAAC TAATGACCCC GTAATTGATT
      TTGCGCCTTG AGGTATATAC CCGATACTTG ATTACTGGGG CATTAATAAA
1901  ACTATTAATA ACTAGTCAAT AATCAATGTC AACATGGCGG TCATATTGGA
      TGATAATTAT TGATCAGTTA TTAGTTACAG TTGTACCGCC AGTATAACCT
1951  CATGAGCCAA TATAAATGTA CATATTATGA TATAGATACA ACGTATGCAA
      GTACTCGGTT ATATTTACAT GTATAATACT ATATCTATGT TGCATACGTT
2001  TGGCCAATAG CCAATATTGA TTTATGCTAT ATAACCAATG ACTAATATGG
      ACCGGTTATC GGTTATAACT AAATACGATA TATTGGTTAC TGATTATACC
2051  CTAATTGCCA ATATTGATTC AATGTATAGA TCTTCCATAC CTACCAGTTC
      GATTAACGGT TATAACTAAG TTACATATCT AGAAGGTATG GATGGTCAAG
2101  TGCGCCTGCA GCAATGCAAC AACGTTGCCC GGATCTGCGA TGATAAGCTG
      ACGCGGACGT CGTTACGTTG TTGCAACGGG CCTAGACGCT ACTATTCGAC
2151  TCAAACATGA GAATTGGTCG ACTAGCTTGG CACGCCAGAA ATCCGCGCGG
      AGTTTGTACT CTTAACCAGC TGATCGAACC GTGCGGTCTT TAGGCGCGCC
2201  TGGTTTTTGG GGGTCGGGGG TGTTTGGCAG CCACAGACGC CCGGTGTTTCG
      ACCAAAAACC CCCAGCCCCC ACAAACCGTC GGTGTCTGCG GGCCACAAGC
2251  TGTCGCGCCA GTACATGCGG TCCATGCCCC GGCCATCCAA AAACCATGGG
      ACAGCGCGGT CATGTACGCC AGGTACGGGT CCGGTAGGTT TTTGGTACCC
2301  TCTGTCTGCT CAGTCCAGTC GTGGACCAGA CCCCACGCAA CGCCAAAAT
      AGACAGACGA GTCAGGTCAG CACCTGGTCT GGGGTGCGTT GCGGGTTTTA
2351  AATAACCCCC ACGAACCATA AACCATTCCC CATGGGGGAC CCCGTCCCTA
      TTATTGGGGG TGCTTGGTAT TTGGTAAGGG GTACCCCTCG GGGCAGGGAT
2401  ACCCACGGGG CCAGTGGCTA TGGCAGGGCC TGCCGCCCCG ACGTTGGCTG
      TGGGTGCCCC GGTCAACGAT ACCGTCCCGG ACGGCGGGGC TGCAACCGAC
2451  CGAGCCCTGG GCCTTCACCC GAACTTGGGG GGTGGGGTGG GGAAGAGGAA
      GCTCGGGACC CGGAAGTGGG CTTGAACCCC CCACCCACCC CCTTTTCCTT
2501  GAAACGCGGG CGTATTGGCC CCAATGGGGT CTCGGTGGGG TATCGACAGA
      CTTTGCGCCC GCATAACCGG GGTTACCCCA GAGCCACCCC ATAGCTGTCT
2551  GTGCCAGCCC TGGGACCGAA CCCCAGCGTTT ATGAACAAAC GACCCAACAC
      CACGGTCGGG ACCCTGGCTT GGGGCGCAAA TACTTGTTTG CTGGGTTGTG
2601  CCGTGCGTTT TATTCTGTCT TTTTATTGCC GTCATAGCGC GGGTTCCCTC
      GGCACGCAA ATAAGACAGA AAAATAACGG CAGTATCGCG CCAAGGAAG
2651  CGGTATTGTC TCCTTCCGTG TTTTCAAGTAG CCTCCCCCAT CTCCCCATT
      GCCATAACAG AGGAAGGCAC AAAGTCAATC GGAGGGGGTA GAGGGGATAA
2701  CCTTTGCCCT CGGACGAGTG CTGGGGCGTC GGTTCCTACT ATCGGCGAGT
      GGAAACGGGA GCCTGCTCAC GACCCCGCAG CCAAGGTGA TAGCCGCTCA

```

FIG. 10-4

pCEP4W/hepEK

```

2751  ACTTCTACAC AGCCATCGGT CCAGACGGCC GCGCTTCTGC GGGCGATTTG
      TGAAGATGTG TCGGTAGCCA GGTCTGCCGG CGCGAAGACG CCCGCTAAAC
2801  TGTACGCCCG ACAGTCCCGG CTCCGGATCG GACGATTGCG TCGCATCGAC
      ACATGCGGGC TGTCAGGGCC GAGGCCTAGC CTGCTAACGC AGCGTAGCTG
2851  CCTGCGCCCA AGCTGCATCA TCGAAATTGC CGTCAACCAA GCTCTGATAG
      GGACGCGGGT TCGACGTAGT AGCTTTAACG GCAGTTGGTT CGAGACTATC
2901  AGTTGGTCAA GACCAATGCG GAGCATATAC GCCCGGAGCC GCGGCGATCC
      TCAACCAGTT CTGGTTACGC CTCGTATATG CGGGCCTCGG CGCCGCTAGG
2951  TGCAAGCTCC GGATGCCTCC GCTCGAAGTA GCGCGTCTGC TGCTCCATAC
      ACGTTCGAGG CCTACGGAGG CGAGCTTCAT CGCGCAGACG ACGAGGTATG
3001  AAGCCAACCA CGGCCTCCAG AAGAAGATGT TGGCGACCTC GTATTGGGAA
      TTCGGTTGGT GCCGGAGGTC TTCTTCTACA ACCGCTGGAG CATAACCCTT
3051  TCCCCGAACA TCGCCTCGCT CCAGTCAATG ACCGCTGTTA TGCGGCCATT
      AGGGGCTTGT AGCGGAGCGA GGTCAAGTAC TGGCGACAAT ACGCCGGTAA
3101  GTCCGTCAGG ACATTGTTGG AGCCGAAATC CGCGTGCACG AGGTGCCGGA
      CAGGCAGTCC TGTAACAACC TCGGCTTTAG GCGCACGTGC TCCACGGCCT
3151  CTTGCGGGCA GTCCTCGGCC CAAAGCATCA GCTCATCGAG AGCCTGCGCG
      GAAGCCCCGT CAGGAGCCGG GTTTCGTAGT CGAGTAGCTC TCGGACGCGC
3201  ACGGACGCAC TGACGGTGTC GTCCATCACA GTTTGCCAGT GATACACATG
      TGCCTGCGTG ACTGCCACAG CAGGTAGTGT CAAACGGTCA CTATGTGTAC
3251  GGGATCAGCA ATCGCGCATA TGAAATCACG CCATGTAGTG TATTGACCGA
      CCCTAGTCGT TAGCGCGTAT ACTTTAGTGC GGTACATCAC ATAAGTGGCT
3301  TTCCTTGCGG TCCGAATGGG CCGAACCCGC TCGTCTGGCT AAGATCGGCC
      AAGGAACGCC AGGCTTACCC GGCTTGGGCG AGCAGACCGA TTCTAGCCGG
3351  GCAGCGATCG CATCCATGGC CTCCGCGACC GGCTGCAGAA CAGCGGGCAG
      CGTCGCTAGC GTAGGTACCG GAGGCGCTGG CCGACGTCTT GTCGCCCCGT
3401  TTCGGTTTCA GGCAGGTCTT GCAACGTGAC ACCCTGTGCA CGGCGGGAGA
      AAGCCAAAGT CCGTCCAGAA CGTTGCACTG TGGGACACGT GCCGCCCTCT
3451  TGCAATAGGT CAGGCTCTCG CTGAATTCCC CAATGTCAAG CACTTCCGGA
      ACGTTATCCA GTCCGAGAGC GACTTAAGGG GTTACAGTTC GTGAAGGCCT
3501  ATCGGGAGCG CGGCCGATGC AAAGTGCCGA TAAACATAAC GATCTTTGTA
      TAGCCCTCGC GCCGGCTACG TTTCACGGCT ATTTGTATTG CTAGAAACAT
3551  GAAACCATCG GCGCAGCTAT TTACCCGCAG GACATATCCA CGCCCTCCTA
      CTTTGGTAGC CGCGTCGATA AATGGGCGTC CTGTATAGGT GCGGGAGGAT
3601  CATCGAAGCT GAAAGCACGA GATTCTTCGC CCTCCGAGAG CTGCATCAGG
      GTAGCTTCGA CTTTCGTGCT CTAAGAAGCG GGAGGCTCTC GACGTAGTCC
3651  TCGGAGACGC TGTCGAACCT TTCGATCAGA AACTTCTCGA CAGACGTCGC
      AGCCTCTGCG ACAGCTTGAA AAGCTAGTCT TTGAAGAGCT GTCTGCAGCG
3701  GGTGAGTTCA GGCTTTTTCA TATCTCATTG CCCGGGATCT GCGGCACGCT
      CCACTCAAGT CCGAAAAAGT ATAGAGTAAC GGGCCCTAGA CGCCGTGCGA
3751  GTTGACGCTG TTAAGCGGGT CGCTGCAGGG TCGCTCGGTG TTCGAGGCCA
      CAACTGCGAC AATTCGCCCA GCGACGTCCC AGCGAGCCAC AAGCTCCGGT
3801  CACGCGTCAC CTTAATATGC GAAGTGGACC TGGGACCGCG CCGCCCCGAC
      GTGCGCAGTG GAATTATACG CTTACCTGG ACCCTGGCGC GCGGGGGCTG
3851  TGCATCTGCG TGTTCGAATT CGCCAATGAC AAGACGCTGG GCGGGGTTTG
      ACGTAGACGC ACAAGCTTAA GCGGTTACTG TTCTGCGACC CGCCCCAAAC

```

FIG. 10-5

pCEP4w/hepEK

```

3901  TGTCATCATA  GAACTAAAGA  CATGCAAATA  TATTTCTTCC  GGGGACACCG
      ACAGTAGTAT  CTTGATTTCT  GTACGTTTAT  ATAAAGAAGG  CCCCTGTGGC
3951  CCAGCAAACG  CGAGCAACGG  GCCACGGGGA  TGAAGCAGGG  CATGGCGGCC
      GGTCGTTTGC  GCTCGTTGCC  CGGTGCCCCC  ACTTCGTCCC  GTACCGCCGG
4001  GACGCGCTGG  GCTACGTCTT  GCTGGCGTTC  GCGACGCGAG  GCTGGATGGC
      CTGCGCGACC  CGATGCAGAA  CGACCGCAAG  CGCTGCGCTC  CGACCTACCG
4051  CTTCCCCATT  ATGATTCTTC  TCGCTTCCGG  CGGCATCGGG  ATGCCCCGCT
      GAAGGGGTAA  TACTAAGAAG  AGCGAAGGCC  GCCGTAGCCC  TACGGGCGCA
4101  TGCAGGCCAT  GCTGTCCAGG  CAGGTAGATG  ACGACCATCA  GGGACAGCTT
      ACGTCCGGTA  CGACAGGTCC  GTCCATCTAC  TGCTGGTAGT  CCCTGTGCGA
4151  CAAGGATCGC  TCGCGGCTCT  TACCAGCCTA  ACTTCGATCA  CTGGACCGCT
      GTTCCTAGCG  AGCGCCGAGA  ATGGTCGGAT  TGAAGCTAGT  GACCTGGCGA
4201  GATCGTCACG  GCGATTTATG  CCGCCTCGGC  GAGCACATGG  AACGGGTTGG
      CTAGCAGTGC  CGCTAAATAC  GCGGAGCCG  CTCGTGTACC  TTGCCCAACC
4251  CATGGATTGT  AGGCGCCGCC  CTATACCTTG  TCTGCCTCCC  CGCGTTGCGT
      GTACCTAACA  TCCGCGGCGG  GATATGGAAC  AGACGGAGGG  GCGCAACGCA
4301  CGCGGTGCAT  GGAGCCGGGC  CACCTCGACC  TGAATGGAAG  CCGGCGGCAC
      GCGCCACGTA  CCTCGGCCCC  GTGGAGCTGG  ACTTACCTTC  GGCCGCCGTG
4351  CTCGCTAACG  GATTCAACCAC  TCCAAGAATT  GGAGCCAATC  AATTCTTGCG
      GAGCGATTGC  CTAAGTGGTG  AGGTTCTTAA  CCTCGGTTAG  TTAAGAACGC
4401  GAGAACTGTG  AATGCGCAAA  CCAACCCTTG  GCAGAACATA  TCCATCGCGT
      CTCTTGACAC  TTACGCGTTT  GGTGGAAC  CGTCTTGAT  AGGTAGCGCA
4451  CCGCCATCTC  CAGCAGCCGC  ACGCGGCGCA  GCAAAGGCC  AGGAACCGTA
      GCGGCTAGAG  GTCGTGCGCG  TCGCGCGCGT  CGTTTTCCGG  TCCTTGGCAT
4501  AAAAGGCCGC  GTTGCTGGCG  TTTTTCATA  GGCTCCGCCC  CCCTGACGAG
      TTTTCCGGCG  CAACGACCGC  AAAAAGGTAT  CCGAGGCGGG  GGGACTGCTC
4551  CATCACAAAA  ATCGACGCTC  AAGTCAGAGG  TGGCGAAACC  CGACAGGACT
      GTAGTGT TTT  TAGCTGCGAG  TTCAGTCTCC  ACCGCTTTGG  GCTGTCTCTGA
4601  ATAAAGATAC  CAGGCGTTTC  CCCCTGGAAG  CTCCCTCGTG  CGCTCTCCTG
      TATTTCTATG  GTCCGCAAAG  GGGGACCTTC  GAGGGAGCAC  GCGAGAGGAC
4651  TTCCGACCCT  GCCGCTTACC  GGATACCTGT  CCGCCTTTCT  CCCTTCGGGA
      AAGGCTGGGA  CGGCGAATGG  CCTATGGACA  GCGGGAAGA  GGAAGCCCT
4701  AGCGTGGCGC  TTTCTCATAG  CTCACGCTGT  AGGTATCTCA  GTTCGGTGTA
      TCGCACCGCG  AAAGAGTATC  GAGTGCGACA  TCCATAGAGT  CAAGCCACAT
4751  GGTCGTTCGC  TCCAAGCTGG  GCTGTGTGCA  CGAACCCCCC  GTTCAGCCCG
      CCAGCAAGCG  AGGTTTCGACC  CGACACACGT  GCTTGGGGGG  CAAGTCGGGC
4801  ACCGCTGCGC  CTTATCCGGT  AACTATCGTC  TTGAGTCCAA  CCCGTAAGA
      TGGCGACGCG  GAATAGGCCA  TTGATAGCAG  AACTCAGGTT  GGGCCATTCT
4851  CACGACTTAT  CGCCACTGGC  AGCAGCCACT  GGTAACAGGA  TTAGCAGAGC
      GTGCTGAATA  GCGGTGACCG  TCGTCGGTGA  CCATTGTCCT  AATCGTCTCG
4901  GAGGTATGTA  GGCGGTGCTA  CAGAGTTCTT  GAAGTGGTGG  CCTAACTACG
      CTCCATACAT  CCGCCACGAT  GTCTCAAGAA  CTTCAACCACC  GGATTGATGC
4951  GCTACACTAG  AAGGACAGTA  TTTGGTATCT  GCGCTCTGCT  GAAGCCAGTT
      CGATGTGATC  TTCCTGTCAT  AAACCATAGA  CGCGAGACGA  CTTCCGGTCAA
5001  ACCTTCGGAA  AAAGAGTTGG  TAGCTCTTGA  TCCGGCAAAC  AAACCACCGC
      TGGAAGCCTT  TTTCTCAACC  ATCGAGAACT  AGGCCGTTTG  TTTGGTGGCG

```

FIG. 10-6

pCEP4W/hepEK

```

5051  TGGTAGCGGT GGTTTTTTTG TTTGCAAGCA GCAGATTACG CGCAGAAAAA
      ACCATCGCCA CCAAAAAAAC AAACGTTCGT CGTCTAATGC GCGTCTTTTT
5101  AAGGATCTCA AGAAGATCCT TTGATCTTTT CTACGGGGTC TGACGCTCAG
      TTCCTAGAGT TCTTCTAGGA AACTAGAAAA GATGCCCCAG ACTGCGAGTC
5151  TGGAACGAAA ACTCACGTTA AGGGATTTTG GTCATGAGAT TATCAAAAAG
      ACCTTGCTTT TGAGTGCAAT TCCCTAAAAC CAGTACTCTA ATAGTTTTTC
5201  GATCTTCACC TAGATCCTTT TAAATTAAAA ATGAAGTTTT AAATCAATCT
      CTAGAAGTGG ATCTAGGAAA ATTTAATTTT TACTTCAAAA TTTAGTTAGA
5251  AAAGTATATA TGAGTAAACT TGGTCTGACA GTTACCAATG CTTAATCAGT
      TTTTATATAT ACTCATTTGA ACCAGACTGT CAATGGTTAC GAATTAGTCA
5301  GAGGCACCTA TCTCAGCGAT CTGTCTATTT CGTTCATCCA TAGTTGCCGTG
      CTCCGTGGAT AGAGTCGCTA GACAGATAAA GCAAGTAGGT ATCAACGGAC
5351  ACTCCCCGTC GTGTAGATAA CTACGATACG GGAGGGCTTA CCATCTGGCC
      TGAGGGGCAG CACATCTATT GATGCTATGC CCTCCCGAAT GGTAGACCGG
5401  CCAGTGCTGC AATGATACCG CGAGACCCAC GCTCACCAGG TCCAGATTTA
      GGTACGACG TTAATATGGC GCTCTGGGTG CGAGTGCCCG AGGTCTAAAT
5451  TCAGCAATAA ACCAGCCAGC CGGAAGGGCC GAGCGCAGAA GTGGTCCTGC
      AGTCGTTATT TGGTCGGTCG GCCTTCCCGG CTCGCGTCTT CACCAGGACG
5501  AACTTTATCC GCCTCCATCC AGTCTATTAA TTGTTGCCGG GAAGCTAGAG
      TTGAAATAGG CGGAGGTAGG TCAGATAATT AACACGGGCC CTTCGATCTC
5551  TAAGTAGTTC GCCAGTTAAT AGTTTGCGCA ACGTTGTTGC CATTGCTGCA
      ATTCATCAAG CGGTCAATTA TCAAACGCGT TGCAACAACG GTAACGACGT
5601  GGCATCGTGG TGTCACGCTC GTCGTTTGGT ATGGCTTCAT TCAGCTCCGG
      CCGTAGCACC ACAGTGCGAG CAGCAAACCA TACCGAAGTA AGTCGAGGCC
5651  TTCCCAACGA TCAAGGCGAG TTACATGATC CCCATGTTG TGCAAAAAAG
      AAGGGTTGCT AGTTCCGCTC AATGTACTAG GGGGTACAAC ACGTTTTTTC
5701  CGGTTAGCTC CTTCGGTCCCT CCGATCGTTG TCAGAAGTAA GTTGGCCGCA
      GCCAATCGAG GAAGCCAGGA GGCTAGCAAC AGTCTTCATT CAACCGGCGT
5751  GTGTTATCAC TCATGGTTAT GGCAGCACTG CATAATTCTC TTAATGTCAT
      CACAATAGTG AGTACCAATA CCGTCGTGAC GTATTAAAGAG AATGACAGTA
5801  GCCATCCGTA AGATGCTTTT CTGTGACTGG TGAGTACTCA ACCAAGTCAT
      CCGTAGGCAT TCTACGAAAA GACACTGACC ACTCATGAGT TGGTTCAGTA
5851  TCTGAGAATA GTGTATGCGG CGACCGAGTT GCTCTTGCCC GCGTCAACA
      AGACTCTTAT CACATACGCC GCTGGCTCAA CGAGAACGGG CCGCAGTTGT
5901  CGGGATAATA CCGCGCCACA TAGCAGAACT TTAAGAGTGC TCATCATTGG
      GCCCTATTAT GGC GCGGTGT ATCGTCTTGA AATTTTCACG AGTAGTAACC
5951  AAAACGTTCT TCGGGGCGAA AACTCTCAAG GATCTTACCG CTGTTGAGAT
      TTTTGCAAGA AGCCCCGCTT TTGAGAGTTC CTAGAATGGC GACAACCTA
6001  CCAGTTCGAT GTAACCCACT CGTGCACCCA ACTGATCTTC AGCATCTTTT
      GGTCAAGCTA CATTGGGTGA GCACGTGGGT TGACTAGAAG TCGTAGAAAA
6051  ACTTTCACCA GCGTTTCTGG GTGAGCAAAA ACAGGAAGGC AAAATGCCGC
      TGAAAGTGGT CGCAAAGACC CACTCGTTTT TGTCCTTCCG TTTTACGGCG
6101  AAAAAAGGGA ATAAGGGCGA CACGGAAATG TTGAATACTC ATACTCTTCC
      TTTTTTCCCT TATTCCCGCT GTGCCTTTAC AACTTATGAG TATGAGAAGG
6151  TTTTTCATAA TTATTGAAGC ATTTATCAGG GTTATTGTCT CATGAGCGGA
      AAAAAGTTAT AATAACTTCG TAAATAGTCC CAATAACAGA GTACTCGCCT

```

FIG. 10-7

pCEP4W/hepEK

```

6201 TACATATTTG AATGTATTTA GAAAAATAAA CAAATAGGGG TTCCGCGCAC
    ATGTATAAAC TTACATAAAT CTTTTTATTT GTTTATCCCC AAGGCGCGTG
6251 ATTTCCCCGA AAAGTGCCAC CTGACGTCTA AGAAACCATT ATTATCATGA
    TAAAGGGGCT TTTCACGGTG GACTGCAGAT TCTTTGGTAA TAATAGTACT
6301 CATTAACTTA TAAAAATAGG CGTATCACGA GGCCCTTTTCG TCTTCAAGAA
    GTAATTGGAT ATTTTATATCC GCATAGTGCT CCGGGAAAGC AGAAGTTCTT
6351 TTCTCATGTT TGACAGCTTA TCATCGATAA GCTGATCCTC ACAGGCCGCA
    AAGAGTACAA ACTGTCAAT AGTAGCTATT CGACTAGGAG TGTCCGGCGT
6401 CCCAGCTTTT CTTCCGTTGC CCCAGTAGCA TCTCTGTCTG GTGACCTTGA
    GGGTCGAAAA GAAGGCAACG GGGTCATCGT AGAGACAGAC CACTGGAAC T
6451 AGAGGAAGAG GAGGGGTCCC GAGAATCCCC ATCCCTACCG TCCAGCAAAA
    TCTCCTTCTC CTCCCCAGGG CTCTTAGGGG TAGGGATGGC AGGTCGTTTT
6501 AGGGGGACGA GGAATTTGAG GCCTGGCTTG AGGCTCAGGA CGCAAATCTT
    TCCCCCTGCT CCTTAAACTC CGGACCGAAC TCCGAGTCCT GCGTTTAGAA
6551 GAGGATGTTT AGCGGGAGTT TTCCGGGCTG CGAGTAATTG GTGATGAGGA
    CTCTACAAAG TCGCCCTCAA AAGGCCCGAC GCTCATTAAC CACTACTCCT
6601 CGAGGATGGT TCGGAGGATG GGGAATTTTC AGACCTGGAT CTGTCTGACA
    GCTCCTACCA AGCCTCCTAC CCCTTAAAG TCTGGACCTA GACAGACTGT
6651 GCGACCATGA AGGGGATGAG GGTGGGGGGG CTGTTGGAGG GGGCAGGAGT
    CGCTGGTACT TCCCCTACTC CCACCCCCC GACAACCTCC CCCGTCCTCA
6701 CTGCACTCCC TGTATTCACT GAGCGTCGTC TAATAAAGAT GTCTATTGAT
    GACGTGAGGG ACATAAGTGA CTCGCAGCAG ATTATTTCTA CAGATAACTA
6751 CTCTTTTAGT GTGAATCATG TCTGACGAGG GGCCAGGTAC AGGACCTGGA
    GAGAAAATCA CACTTAGTAC AGACTGCTCC CCGGTCCATG TCCTGGACCT
6801 AATGGCCTAG GAGAGAAGGG AGACACATCT GGACCAGAAG GCTCCGGCGG
    TTACCGGATC CTCTCTTCCC TCTGTGTAGA CCTGGTCTTC CGAGGCCGCC
6851 CAGTGGACCT CAAAGAAGAG GGGGTGATAA CCATGGACGA GGACGGGGAA
    GTCACCTGGA GTTTCTTCTC CCCCCTATT GGTACCTGCT CCTGCCCCCTT
6901 GAGGACGAGG ACGAGGAGGC GGAAGACCAG GAGCCCCGGG CGGCTCAGGA
    CTCCTGCTCC TGCTCCTCCG CCTTCTGGTC CTCGGGGCCC GCCGAGTCCT
6951 TCAGGGCCAA GACATAGAGA TGGTGTCCGG AGACCCCAA AACGTCCAAG
    AGTCCCGGTT CTGTATCTCT ACCACAGGCC TCTGGGGTTT TTGCAGGTTC
7001 TTGCATTGGC TGCAAAGGGA CCCACGGTGG AACAGGAGCA GGAGCAGGAG
    AACGTAACCG ACGTTTCCCT GGGTGCCACC TTGTCCTCGT CCTCGTCCTC
7051 CGGGAGGGGC AGGAGCAGGA GGGGCAGGAG CAGGAGGAGG GGCAGGAGCA
    GCCCTCCCCG TCCTCGTCCT CCCCCTCCTC GTCTCCTCC CCGTCCTCGT
7101 GGAGGAGGGG CAGGAGGGGC AGGAGGGGCA GGAGGGGCAG GAGCAGGAGG
    CCTCCTCCCC GTCTCCCCG TCCTCCCCGT CCTCCCCGTC CTCGTCTCCTC
7151 AGGGGCAGGA GCAGGAGGAG GGGCAGGAGG GGCAGGAGGG GCAGGAGCAG
    TCCCCGTCCT CGTCCTCCTC CCCGTCCTCC CCGTCCTCCC CGTCCTCGTC
7201 GAGGAGGGGC AGGAGCAGGA GGAGGGGCAG GAGGGGCAGG AGCAGGAGGA
    CTCTCCCCG TCCTCGTCCT CCTCCCCGTC CTCCCCGTCC TCGTCCTCCT
7251 GGGGCAGGAG GGGCAGGAGG GGCAGGAGCA GGAGGAGGGG CAGGAGCAGG
    CCCCCTCCTC CCGTCCTCC CCGTCCTCGT CCTCCTCCCC GTCTCCTCGTC
7301 AGGAGGGGCA GGAGGGGCAG GAGCAGGAGG AGGGGCAGGA GGGGCAGGAG
    TCCTCCCCGT CCTCCCCGTC CTCGTCTCCT TCCCCGTCCT CCCCCTCCTC

```

FIG. 10-8

pCEP4W/hepEK

```

7351  GGGCAGGAGC AGGAGGAGGG GCAGGAGCAG GAGGGGCAGG AGGGGCAGGA
      CCCGTCCCTCG TCCTCCTCCC CGTCCTCGTC CTCCCCGTCC TCCCCGTCTT
7401  GGGGCAGGAG CAGGAGGGGC AGGAGCAGGA GGAGGGGCAG GAGGGGCAGG
      CCCCCTCCTC GTCCTCCCCG TCCTCGTCCT CCTCCCCGTC CTCCCCGTCC
7451  AGGGGCAGGA GCAGGAGGGG CAGGAGCAGG AGGGGCAGGA GCAGGAGGGG
      TCCCCGTCTT CGTCCTCCCC GTCTCTCGTC TCCCCGTCTT CGTCCTCCCC
7501  CAGGAGCAGG AGGGGCAGGA GGGGCAGGAG CAGGAGGGGC AGGAGGGGGCA
      GTCTCTCGTC TCCCCGTCTT CCCCCTCCTC GTCTCCCCCG TCCTCCCCGT
7551  GGAGCAGGAG GGGCAGGAGG GGCAGGAGCA GGAGGAGGGG CAGGAGGGGC
      CCTCGTCCTC CCGTCCTTCC CCGTCCTCGT CCTCTCCCC GTCTCCCCCG
7601  AGGAGCAGGA GGAGGGGCAG GAGGGGCAGG AGCAGGAGGG GCAGGAGGGG
      TCCTCGTCCT CCTCCCCGTC CTCCCCGTCC TCGTCCTCCC CGTCCTCCCC
7651  CAGGAGCAGG AGGGGCAGGA GGGGCAGGAG CAGGAGGGGC AGGAGGGGGCA
      GTCTCTCGTC TCCCCGTCTT CCCCCTCCTC GTCTCCCCCG TCCTCCCCGT
7701  GGAGCAGGAG GAGGGGCAGG AGCAGGAGGG GCAGGAGCAG GAGGTGGAGG
      CCTCGTCCTC CTCCCCGTCC TCGTCCTCCC CGTCCTCGTC CTCCACCTCC
7751  CCGGGGTCGA GGAGGCAGTG GAGGCCGGGG TCGAGGAGGT AGTGGAGGCC
      GGCCCCAGCT CCTCCGTCAC CTCCGGCCCC AGCTCCTCCA TCACCTCCGG
7801  GGGGTCGAGG AGGTAGTGGA GGCCGCCGGG GTAGAGGACG TGAAAGAGCC
      CCCCAGCTCC TCCATCACCT CCGGCCGGCC CATCTCCTGC ACTTTCTCGG
7851  AGGGGGGGAA GTCGTGAAAG AGCCAGGGGG AGAGGTCGTG GACGTGGAGA
      TCCCCCCTT CAGCACTTTC TCGGTCCCCC TCTCCAGCAC CTGCACCTCT
7901  AAAGAGGCCC AGGAGTCCCA GTAGTCAGTC ATCATCATCC GGGTCTCCAC
      TTTCTCCGGG TCCTCAGGGT CATCAGTCAG TAGTAGTAGG CCCAGAGGTG
7951  CGCGCAGGCC CCCTCCAGGT AGAAGGCCAT TTTTCCACCC TGTAGGGGAA
      GCGCGTCCGG GGGAGGTCCA TCTTCCGGTA AAAAGGTGGG ACATCCCCCT
8001  GCCGATTATT TTGAATACCA CCAAGAAGGT GGCCAGATG GTGAGCCTGA
      CGGCTAATAA AACTTATGGT GGTCTTCCA CCGGTCTAC CACTCGGACT
8051  CGTGCCCCCG GGAGCGATAG AGCAGGGCCC CGCAGATGAC CCAGGAGAAG
      GCACGGGGGC CCTCGCTATC TCGTCCCGGG GCGTCTACTG GGTCTCTTTC
8101  GCCCAAGCAC TGGACCCCGG GGTGAGGGTG ATGGAGGCAG GCGCAAAAAA
      CGGGTTCGTG ACCTGGGGCC CCAGTCCCAC TACCTCCGTC CGCGTTTTTT
8151  GGAGGGTGGT TTGGAAGCA TCGTGGTCAA GGAGGTTCCA ACCCGAAATT
      CCTCCACCA AACCTTTCGT AGCACCAGTT CCTCCAAGGT TGGGCTTTAA
8201  TGAGAACATT GCAGAAGGTT TAAGAGCTCT CCTGGCTAGG AGTCACGTAG
      ACTCTGTAA CGTCTTCAA ATTCTCGAGA GGACCGATCC TCAGTGCATC
8251  AAAGGACTAC CGACGAAGGA ACTTGGGTCG CCGGTGTGTT CGTATATGGA
      TTTCTGATG GCTGCTTCTT TGAACCCAGC GGCCACACAA GCATATACCT
8301  GGTAGTAAGA CCTCCCTTTA CAACCTAAGG CGAGGAACTG CCCTTGCTAT
      CCATCATTTT GGAGGGAAAT GTTGATTCC GCTCCTTGAC GGGAACGATA
8351  TCCACAATGT CGTCTTACAC CATTGAGTCG TCTCCCCTTT GGAATGGCCC
      AGGTGTTACA GCAGAATGTG GTAACTCAGC AGAGGGGAAA CTTTACCGGG
8401  CTGGACCCCG CCCACAACCT GGCCCGCTAA GGGAGTCCAT TGTCTGTTAT
      GACCTGGGCC GGGTGTGGA CCGGGCGATT CCCTCAGGTA ACAGACAATA
8451  TTCATGGTCT TTTTACAAAC TCATATATTT GCTGAGGTTT TGAAGGATGC
      AAGTACCAGA AAAATGTTTG AGTATATAAA CGACTCCAAA ACTTCCTACG

```

FIG. 10-9

pCEP4W/hepEK

```

8501  GATTAAGGAC CTTGTTATGA CAAAGCCCGC TCCTACCTGC AATATCAGGG
      CTAATTCCTG GAACAATACT GTTTCGGGCG AGGATGGACG TTATAGTCCC
8551  TGA CTGTGTG CAGCTTTGAC GATGGAGTAG ATTTGCCTCC CTGGTTTCCA
      ACTGACACAC GTCGAAACTG CTACCTCATC TAAACGGAGG GACCAAAGGT
8601  CCTATGGTGG AAGGGGCTGC CGCGGAGGGT GATGACGGAG ATGACGGAGA
      GGATACCACC TTCCCCGACG GCGCCTCCCA CTACTGCCTC TACTGCCTCT
8651  TGAAGGAGGT GATGGAGATG AGGGTGAGGA AGGGCAGGAG TGATGTA ACT
      ACTTCCTCCA CTACCTCTAC TCCCCTCCTC TCCCGTCCTC ACTACATTGA
8701  TGTTAGGAGA CGCCCTCAAT CGTATTAAAA GCCGTGTATT CCCCCGCACT
      ACAATCCTCT GCGGGAGTTA GCATAATTTT CGGCACATAA GGGGGCGTGA
8751  AAAGAATAAA TCCCCAGTAG ACATCATGCG TGCTGTTGGT GTATTTCTGG
      TTTCTTATTT AGGGGTCATC TG TAGTACGC ACGACAACCA CATAAAGACC
8801  CCATCTGTCT TGTCACCATT TTCGTCCTCC CAACATGGGG CAATTGGGCA
      GGTAGACAGA ACAGTGGTAA AAGCAGGAGG GTTGTACCCC GTTAACCCGT
8851  TACCCATGTT GTCACGTCAC TCAGCTCCGC GCTCAACACC TTCTCGCGTT
      ATGGGTACAA CAGTGCAGTG AGTCGAGGCG CGAGTTGTGG AAGAGCGCAA
8901  GGAAAACATT AGCGACATTT ACCTGGTGAG CAATCAGACA TGCGACGGCT
      CCTTTTGTA TCGCTGTAAA TGGACCACTC GTTAGTCTGT ACGCTGCCGA
8951  TTAGCCTGGC CTCCTTAAAT TCACCTAAGA ATGGGAGCAA CCAGCATGCA
      AATCGGACCG GAGGAATTTA AGTGGATTCT TACCCTCGTT GGTCGTACGT
9001  GGAAAAGGAC AAGCAGCGAA AATTCACGCC CCCTTGGGAG GTGGCGGCAT
      CCTTTTCCTG TTCGTCGCTT TTAAGTGCGG GGGAACCCTC CACCGCCGTA
9051  ATGCAAAGGA TAGCACTCCC ACTCTACTAC TGGGTATCAT ATGCTGACTG
      TACGTTTCCT ATCGTGAGGG TGAGATGATG ACCCATAGTA TACGACTGAC
9101  TATATGCATG AGGATAGCAT ATGCTACCCG GATACAGATT AGGATAGCAT
      ATATACGTAC TCCTATCGTA TACGATGGGC CTATGTCTAA TCCTATCGTA
9151  ATACTACCCA GATATAGATT AGGATAGCAT ATGCTACCCA GATATAGATT
      TATGATGGGT CTATATCTAA TCCTATCGTA TACGATGGGT CTATATCTAA
9201  AGGATAGCCT ATGCTACCCA GATATAAATT AGGATAGCAT ATACTACCCA
      TCCTATCGGA TACGATGGGT CTATATTTAA TCCTATCGTA TATGATGGGT
9251  GATATAGATT AGGATAGCAT ATGCTACCCA GATATAGATT AGGATAGCCT
      CTATATCTAA TCCTATCGTA TACGATGGGT CTATATCTAA TCCTATCGGA
9301  ATGCTACCCA GATATAGATT AGGATAGCAT ATGCTACCCA GATATAGATT
      TACGATGGGT CTATATCTAA TCCTATCGTA TACGATGGGT CTATATCTAA
9351  AGGATAGCAT ATGCTATCCA GATATTTGGG TAGTATATGC TACCCAGATA
      TCCTATCGTA TACGATAGGT CTATAAACCC ATCATATACG ATGGGTCTAT
9401  TAAATTAGGA TAGCATATAC TACCCTAATC TCTATTAGGA TAGCATATGC
      ATTTAATCCT ATCGTATATG ATGGGATTAG AGATAATCCT ATCGTATACG
9451  TACCCGAGTA CAGATTAGGA TAGCATATAC TACCCAGATA TAGATTAGGA
      ATGGGCCCTAT GTCTAATCCT ATCGTATATG ATGGGTCTAT ATCTAATCCT
9501  TAGCATATGC TACCCAGATA TAGATTAGGA TAGCCTATGC TACCCAGATA
      ATCGTATACG ATGGGTCTAT ATCTAATCCT ATCGGATACG ATGGGTCTAT
9551  TAAATTAGGA TAGCATATAC TACCCAGATA TAGATTAGGA TAGCATATGC
      ATTTAATCCT ATCGTATATG ATGGGTCTAT ATCTAATCCT ATCGTATACG
9601  TACCCAGATA TAGATTAGGA TAGCCTATGC TACCCAGATA TAGATTAGGA
      ATGGGTCTAT ATCTAATCCT ATCGGATACG ATGGGTCTAT ATCTAATCCT

```

FIG. 10-10

pCEP4W/hepEK

```

9651 TAGCATATGC TATCCAGATA TTTGGGTagT ATATGCTACC CATGGCAACA
    ATCGTATACG ATAGGTCTAT AAACCCATCA TATACGATGG GTACCGTTGT
9701 TTAGCCCACC GTGCTCTCAG CGACCTCGTG AATATGAGGA CCAACAACCC
    AATCGGGTGG CACGAGAGTC GCTGGAGCAC TTATACTCCT GGTGTGTGGG
9751 TGTGCTTGGC GCTCAGGCGC AAGTGTGTGT AATTTGTCCCT CCAGATCGCA
    ACACGAACCG CGAGTCCGCG TTCACACACA TTAAACAGGA GGTCTAGCGT
9801 GCAATCGCGC CCCTATCTTG GCCCGCCAC CTACTTATGC AGGTATTCCC
    CGTTAGCGCG GGGATAGAAC CGGGCGGGTG GATGAATACG TCCATAAGGG
9851 CGGGGTGCCA TTAGTGTTT TGTGGGCAAG TGGTTTGACC GCAGTGGTTA
    GCCCCACGGT AATCACCAAA ACACCCGTTT ACCAAACTGG CGTCACCAAT
9901 GCGGGGTAC AATCAGCCAA GTTATTACAC CCTATTTTTA CAGTCCAAAA
    CGCCCCAATG TTAGTCGGTT CAATAATGTG GGAATAAAAT GTCAGGTTTT
9951 CCGCAGGGCG GCGTGTGGGG GCTGACGCGT GCGGGGCTC CACAATTTCA
    GCGTCCCGC CGCACACCCC CGACTGCGCA CGGGGGTGAG GTGTTAAAGT
10001 AAAAAAAGAG TGGCCACTTG TCTTTGTTTA TGGGCCCCAT TGGCGTGGAG
    TTTTTTCTC ACCGGTGAAC AGAAACAAAT ACCCGGGGTA ACCGCACCTC
10051 CCGCGTTTAA TTTTCGGGGG TGTTAGAGAC AACCAGTGGA GTCCGCTGCT
    GGGGCAAATT AAAAGCCCCC ACAATCTCTG TTGGTCACCT CAGGCGACGA
10101 GTCGGCGTCC ACTCTCTTTC CCCTTGTTAC AAATAGAGTG TAACAACATG
    CAGCCGCAGG TGAGAGAAAG GGAACAATG TTTATCTCAC ATTGTTGTAC
10151 GTTCACCTGT CTTGGTCCCT GCCTGGGACA CATCTTAATA ACCCCAGTAT
    CAAGTGGACA GAACCAGGGA CGGACCCTGT GTAGAATTAT TGGGGTCATA
10201 CATATTGCAC TAGGATTATG TGTGCCCCAT AGCCATAAAT TCGTGTGAGA
    GTATAACGTG ATCCTAATAC ACAACGGGTA TCGGTATTTA AGCACACTCT
10251 TGGACATCCA GTCTTTACGG CTGTGCCCCA CCCCATGGAT TTCTATTGTT
    ACCTGTAGGT CAGAAATGCC GAACAGGGGT GGGGTACCTA AAGATAACAA
10301 AAAGATATTC AGAATGTTTC ATTCCCTACAC TAGTATTTAT TGCCCAAGGG
    TTTCTATAAG TCTTACAAAG TAAGGATGTG ATCATAAATA ACGGGTTCCC
10351 GTTTGTGAGG GTTATATTGG TGTCATAGCA CAATGCCACC ACTGAACCCC
    CAAACACTCC CAATATAACC ACAGTATCGT GTTACGGTGG TGAAGCTCGT
10401 CCGTCCAAAT TTTATTCTGG GGGCGTCACC TGAAACCTTG TTTTCGAGCA
    GGCAGGTTTA AAATAAGACC CCCGCAGTGG ACTTTGGAAC AAAAGCTCGT
10451 CCTCACATAC ACCTTACTGT TCACAACTCA GCAGTTATTC TATTAGCTAA
    GGAGTGTATG TGGAATGACA AGTGTGAGT CGTCAATAAG ATAATCGATT
10501 ACGAAGGAGA ATGAAGAAGC AGGCGAAGAT TCAGGAGAGT TCACTGCCCCG
    TGCTTCCTCT TACTTCTTCG TCCGCTTCTA AGTCCTCTCA AGTGACGGGC
10551 CTCCTTGATC TTCAGCCACT GCCCTTGTTA CTAAAATGGT TCACTACCCT
    GAGGAAC TAGTTCGGTGA CGGGAACACT GATTTTACCA AGTGATGGGA
10601 CGTGGAATCC TGACCCCATG TAAATAAAAC CGTGACAGCT CATGGGGTGG
    GCACCTTAGG ACTGGGGTAC ATTTATTTTG GCACTGTCTGA GTACCCACCC
10651 GAGATATCGC TGTTCTTAG GACCCTTTTA CTAACCCTAA TTCGATAGCA
    CTCTATAGCG ACAAGGAATC CTGGGAAAAT GATTGGGATT AAGCTATCGT
10701 TATGCTTCCC GTTGGGTAAC ATATGCTATT GAATTAGGGT TAGTCTGGAT
    ATACGAAGGG CAACCCATTG TATACGATAA CTTAATCCCA ATCAGACCTA
10751 AGTATATACT ACTACCCGGG AAGCATATGC TACCCGTTTA GGGTTAACAA
    TCATATATGA TGATGGGCCC TTCGTATACG ATGGGCAAAT CCCAATTGTT

```

FIG. 10-11

pCEP4W/hepEK

```

10801  GGGGGCCTTA TAAACACTAT TGCTAATGCC CTCTTGAGGG TCCGCTTATC
      CCCCCGGAAT ATTTGTGATA ACGATTACGG GAGAACTCCC AGGCGAATAG
10851  GG TAGCTACA CAGGCCCCCTC TGATTGACGT TGGTGTAGCC TCCCGTAGTC
      CCATCGATGT GTCCGGGGGAG ACTAACTGCA ACCACATCGG AGGGCATCAG
10901  TTCCTGGGCC CCTGGGAGGT ACATGTCCCC CAGCATTGGT GTAAGAGCTT
      AAGGACCCGG GGACCCTCCA TGTACAGGGG GTCGTAACCA CATTCTCGAA
10951  CAGCCAAGAG TTACACATAA AGGCAATGTT GTGTTGCAGT CCACAGACTG
      GTCGGTTCTC AATGTGTATT TCCGTTACAA CACAACGTCA GGTGTCTGAC
11001  CAAAGTCTGC TCCAGGATGA AAGCCACTCA GTGTTGGCAA ATGTGCACAT
      GTTTCAGACG AGGTCCTACT TTCGGTGAGT CACAACCGTT TACACGTGTA
11051  CCATTTATAA GGATGTCAAC TACAGTCAGA GAACCCCTTT GTGTTTGGTC
      GGTAAATATT CCTACAGTTG ATGTCAGTCT CTTGGGGAAA CACAAACCAG
11101  CCCCCCGTG TCACATGTGG AACAGGGCCC AGTTGGCAAG TTGTACCAAC
      GGGGGGGCAC AGTGTAACAC TTGTCCCGGG TCAACCGTTC AACATGGTTG
11151  CAACTGAAGG GATTACATGC ACTGCCCCGC GAAGAAGGGG CAGAGATGCC
      GTTGACTTCC CTAATGTACG TGACGGGGCG CTTCTTCCCC GTCTCTACGG
11201  GTAGTCAGGT TTAGTTCGTC CGGCGGCGGG GCTCTAGAGT CGACCGGTCA
      CATCAGTCCA AATCAAGCAG GCCGCCGCCG CGAGATCTCA GCTGGCCAGT
11251  TGGCTGCGCC CCGACACCCG CCAACACCCG CTGACGCGCC CTGACGGGCT
      ACCGACGCGG GGCTGTGGGC GGTTGTGGGC GACTGCGCGG GACTGCCCGA
11301  TGTCTGCTCC CGGCATCCGC TTACAGACAA GCTGTGACCG TCTCCGGGAG
      ACAGACGAGG GCCGTAGGCG AATGTCTGTT CGACACTGGC AGAGGCCCTC
11351  CTGCATGTGT CAGAGGTTTT CACCGTCATC ACCGAAACGC GCGAGGCAGC
      GACGTACACA GTCTCCAAAA GTGGCAGTAG TGGCTTTGCG CGCTCCGTCG
11401  CGGATCATAA TCAGCCATAC CACATTTGTA GAGGTTTTAC TTGCTTTAAA
      GCCTAGTATT AGTCGGTATG GTGTAAACAT CTCCAAAATG AACGAAATTT
11451  AAACCTCCCC ACCTCCCCCT GAACCTGAAA CATAAAATGA ATGCAATTGT
      TTTGGAGGGG TGGAGGGGGA CTTGGACTTT GTATTTTACT TACGTTAACA
11501  TGTTGTTAAC TTGTTTATTG CAGCTTATAA TGGTTACAAA TAAAGCAATA
      ACAACAATTG AACAAATAAC GTCGAATATT ACCAATGTTT ATTTTCGTTAT
11551  GCATCACAAA TTTCACAAAT AAAGCATTTT TTTCACGTGA TTCTAGTTGT
      CGTAGTGTTT AAAGTGTTTA TTTCTGTAATA AAAGTGACGT AAGATCAACA
11601  GGTTTGTCCA AACTCATCAA TGTATCTTAT CATGTCCTGA TCCCACGTGC
      CCAAACAGGT TTGAGTAGTT ACATAGAATA GTACAGACCT AGGGTGCACG
11651  AGGCGGGGAG GCGGCCCAAA GGGAGATCCG ACTCGTCTGA GGGCGAAGGC
      TCCGCCCCCTC CGCCGGGTTT CCCTCTAGGC TGAGCAGACT CCCGCTTCCG
11701  GAAGACGCGG AAGAGGCCGC AGAGCCGGCA GCAGGCCGCG GGAAGGAAGG
      CTTCTGCGCC TTCTCCGGCG TCTCGGCCGT CGTCCGGCGC CCTTCTTCC
11751  TCCGCTGGAT TGAGGGCCGA AGGGACGTAG CAGAAGGACG TCCCGCGCAG
      AGGCGACCTA ACTCCCGGCT TCCCTGCATC GTCTTCTGTC AGGGCGCGTC
11801  AATCCAGGTG GCAACACAGG CGAGCAGCCA AGGAAAGGAC GATGATTTCC
      TTAGGTCCAC CGTTGTGTCC GCTCGTCGGT TCCTTTTCTG CTAATAAAGG
11851  CCGACAACAC CACGGAATTG TCAGTGCCCA ACAGCCGAGC CCCTGTCCAG
      GGCTGTTGTG GTGCCTTAAC AGTCACGGGT TGTCGGCTCG GGGACAGGTC
11901  CAGCGGGCAA GGCAGGCGGC GATGAGTTCC GCCGTGGCAA TAGGGAGGGG
      GTCGCCCCGT CCGTCCGCCG CTAATAAAGG CGGCACCGTT ATCCCTCCCC

```

FIG. 10-12

pCEP4W/hepEK

```
11951  GAAAGCGAAA GTCCCGGAAA GGAGCTGACA GGTGGTGGCA ATGCCCCAAC
      CTTTCGCTTT CAGGGCCTTT CCTCGACTGT CCACCACCGT TACGGGGTTG
12001  CAGTGGGGGT TGCCTCAGCA AACACAGTGC ACACCACGCC ACGTTGCCTG
      GTCACCCCCA ACGCAGTCGT TTGTGTCACG TGTGGTGCGG TGCAACGGAC
12051  ACAACGGGCC ACAACTCCTC ATAAAGAGAC AGCAACCAGG ATTTATACAA
      TGTGCCCCGG TGTGAGGAG TATTTCTCTG TCGTTGGTCC TAAATATGTT
12101  GGAGGAGAAA ATGAAAGCCA TACGGGAAGC AATAGCATGA TACAAAGGCA
      CCTCCTCTTT TACTTTCGGT ATGCCCTTCG TTATCGTACT ATGTTTCCGT
12151  TTAAAGCAGC GTATCCACAT AGCGTAAAAG GAGCAACATA GTTAAGAATA
      AATTTCTGTC CATAGGTGTA TCGCATTTTC CTCGTTGTAT CAATTCTTAT
12201  CCAGTCAATC TTTCACAAAT TTTGTAATCC AGAGGTGAT TC
      GGTCAGTTAG AAAGTGTTTA AAACATTAGG TCTCCAATA AG
```

FIG. 11-1

pCEP4W/hep36

```

1  TCGAGCGGCC GCTTTAACT CAATGGTGAT GGTGATGATG ACCGGTACGC
   AGCTCGCCGG CGAAATTTGA GTTACCACTA CCACTACTAC TGGCCATGCG
-3      H H H H H H H G T R T
51  GTAGAATCGA GACCGAGGAG AGGGTTAGGG ATAGGCTTAC CGAATTCGAG
   CATCTTAGCT CTGGCTCCTC TCCCAATCCC TATCCGAATG GCTTAAGCTC
-3  T S D L G L L P N P I P K G F E L
101 CTGGGTCACC ATGCCGCTGG CTTCGGAGTG AGTCTTTATG GCCTGGAAGA
   GACCCAGTGG TACGGCGACC GAAGCCTCAC TCAGAAATAC CGGACCTTCT
-3  Q T V M G S A E S H T K I A Q F I
151 TCCACTCCCG GAAGTCACTG ACTTTGGTGT AGACGCCTGG CTCTGGGCC
   AGGTGAGGGC CTTCAGTGAC TGAAACCACA TCTGCGGACC GAAGACCCGG
-3  I W E R F D S V K T Y V G P K Q A L
201 AGGGCACAGC CAGTGCCCCA ACTCACAATG CCACACAGCC GCCAACGTGG
   TCCCGTGTCTG GTCACGGGGT TGAGTGTTAC GGTGTGTCTGG CGGTTCGACC
-3  L A C G T G W S V I G C L R W R P
251 CGTCCGAGAG ATGCTGTCCT CACACACAAA GGGACCACCG CTGTCGCCCT
   GCAGGCTCTC TACGACAGGA GTGTGTGTTT CCCTGGTGCG GACAGCGGGA
-3  T R S I S D E C V F P G G S D G Q
301 GGCAGGCATC AATGCCACCC TCGGGGTAGC CAGCACAGAA CATCTTGGGC
   CCGTCCGTAG TTACGGTGGG AGCCCCATCG GTCGTGTCTT GTAGAACCCG
-3  Q C A D I G G E P Y G A C F M K P K
351 TTGATCTGGT TTCCATAGAA ATCAGCGCCA TTGCAGACAT CATTGCTGAT
   AACTAGACCA AAGGTATCTT TAGTCGCGGT AACGTCTGTA GTAACGACTA
-3  K I Q N G Y F D A G N C V D N S I
401 TATGGGGACT CGAGCCTCCT GGAGTACCCC GGCCTGTTGG CCATAGTACT
   ATACCCCTGA GCTCGGAGGA CCTCATGGGG CCGGACAACC GGTATCATGA
-3  I P V R A E Q L V G A Q Q G Y Y Q
451 GCGTGTGCCC CCAGCCCCTC ACGGTACAGA TCTTGCCATC CACCAGGGCC
   CGCACAAACGG GGTCCGGCAG TGCCATGTCT AGAACGGTAG GTGGTCCCGG
-3  Q T N G W G T V T C I K G D V L A Q
501 TGGCCGGCAG CTGGGAGGCA CACAGGCTGG ATGTATTCTG TGAGGGGCAG
   ACCGGCCGTC GACCTCCGT GTGTCCGACC TACATAAGAC ACTCCCCGTC
-3  Q G A A P L C V P Q I Y E T L P L
551 GGGACTGGAG AGGTGGACCA GGGCAATATC GTTGCTGTTT TCCTCGCTGT
   CCCTGACCTC TCCACCTGGT CCCGTTATAG CAACGACAAG AGGAGCGACA
-3  P S S L H V L A I D N S N E E S N
601 TGGGGTCCCG AAAGGGAAGA TAGCCCCCGT GGTAGACCAC AGCCTGCACC
   ACCCCAGGGC TTTCCCTTCT ATCGGGGGCA CCATCTGGTG TCGGACGTGG
-3  N P D R F P L Y G G H Y V V A Q V G
651 CCCAGCTGCA GACCGTGGGG AGAGGCCTGG GCCACGGCAC CGGCAAACAC
   GGGTCGACGT CTGGCACCCC TCTCCGGACC CCGTGCCCGTG GCCGTTTGTG
-3  G L Q L G H P S A Q A V A G A F V
701 TCGCCATCGG GACAGGACCC GGTTCGCTC CGGGAAGCAG TGGGCGGCTG
   AGCGGTAGCC CTGTCCTGGG CCAAGGCGAG GCCCTTCGTC ACCCGCCGAC
-3  R W R S L V R N R E P F C H A A T

```

FIG. 11-2

pCEP4W/hep36

```

751 TCAGCACCCA GTCCCCGAG AGCAGGGATC CCCCACAGAG GTGTGCTCCA
    AGTCGTGGGT CAGGGGCCTC TCGTCCCTAG GGGGTGTCTC CACACGAGGT
-3 T L V W D G S L L S G G C L H A G D
801 TCATAGCGAA GGCTGACTTG CCACGGCCAC CGGCCCAAGC TGGTGTCCCG
    AGTATCGCTT CCGACTGAAC GGTGCCGGTG GCCGGGTTCG ACCACAGGGC
-3 D Y R L S V Q W P W R G L S T D R
851 GCCTCCCACG ATCTTGTCGT CGTCGTCCAC GGGCAGCTTC CTGCGGCCAC
    CGGAGGGTGC TAGAACAGCA GCAGCAGGTG CCCGTCGAAG GACGCCGGTG
-3 G G V I K D D D D V P L K R R G C
901 AGTCTTGGTC CGGAGCGTCA CCAGTGGAAC CTGGAACCCA GAGCAGCAGT
    TCAGAACCAG GCCTCGCAGT GGTACCTTG GACCTTGGGT CTCGTCGTCA
-3 C D Q D P A D G T S G P V W L L L V
951 ACCCATAGCA GGAGTGTGTC TGTCTCCATG GTGGCGATCT GGTACCCAGC
    TGGGTATCGT CCTCACACAG ACAGAGGTAC CACCGCTAGA CCATGGGTCTG
-3 V W L L L T D T E M
1001 TTCTAGAGAT CTGACGGTTC ACTAAACGAG CTCTGCTTAT ATAGACCTCC
    AAGATCTCTA GACTGCCAAG TGATTTGCTC GAGACGAATA TATCTGGAGG
1051 CACCGTACAC GCCTACCGCC CATTTGCGTC AACGGGGCGG GGTATTACG
    GTGGCATGTG CGGATGGCGG GTAAACGCAG TTGCCCCGCC CCAATAATGC
1101 ACATTTTGGA AAGTCCCGTT GATTTTGGTG CAAAACAAA CTCCCATGTA
    TGTA AACCT TTCAGGGCAA CTAAACACAC GGTTTTGT TT GAGGGTAACT
1151 CGTCAATGGG GTGGAGACTT GGAAATCCCC GTGAGTCAAA CCGCTATCCA
    GCAGTTACCC CACCTCTGAA CCTTTAGGGG CACTCAGTTT GCGGATAGGT
1201 CGCCCATTTG TGTACTGCCA AAACCGCATC ACCATGGTAA TAGCGATGAC
    GCGGGTAACC ACATGACGGT TTTGGCGTAG TGGTACCATT ATCGCTACTG
1251 TAATACGTAG ATGTACTGCC AAGTAGGAAA GTCCCGTAAG GTCATGTA CT
    ATTATGCATC TACATGACGG TTCATCCTTT CAGGGCATTC CAGTACATGA
1301 GGGCATAATG CCAGGCGGGC CATTTACCGT CATTGACGTC AATAGGGGGC
    CCCGTATTAC GGTCCGCCCG GTAAATGGCA GTAAGTGCAG TTATCCCCCG
1351 GGACTTGGCA TATGATACAC TTGATGTA CTGCAAGTGGG CAGTTTACCG
    CCTGAACCGT ATACTATGTG AACTACATGA CGGTTCACCC GTCAAAATGGC
1401 TAAATACTCC ACCCATTTGAC GTCAATGGAA AGTCCCTATT GCGGTACTA
    ATTTATGAGG TGGGTAAGT CAGTTACCTT TCAGGGATAA CCGCAATGAT
1451 TGGGAACATA CGTCATTATT GACGTCAATG GGCGGGGGTTC GTTGGGCGGT
    ACCCTTGTAT GCAGTAATAA CTGCAGTTAC CCGCCCCCAG CAACCCGCCA
1501 CAGCCAGGCG GGCCATTTAC CGTAAGTTAT GTAACGCGGA ACTCCATATA
    GTCGGTCCGC CCGGTAAATG GCATTCAATA CATTGCGCCT TGAGGTATAT
1551 TGGGCTATGA ACTAATGACC CCGTAATTGA TTAATATTAA TAAGTAGTCA
    ACCCGATACT TGATTACTGG GGCATTAACT AATGATAATT ATTGATCAGT
1601 ATAATCAATG TCAACATGGC GGTCAATTTG GACATGAGCC AATATAAATG
    TATTAGTTAC AGTTGTACCG CCAGTATAAC CTGTACTCGG TTATATTTAC
1651 TACATATTAT GATATAGATA CAACGTATGC AATGGCCAAT AGCCAATATT
    ATGTATAATA CTATATCTAT GTTGATACG TTACCGGTTA TCGGTTATAA
1701 GATTTATGCT ATATAACCAA TGACTAATAT GGCTAATTGC CAATATTGAT
    CTAAATACGA TATATTGGTT ACTGATTATA CCGATTAAAC GTTATAACTA

```

FIG. 11-3

pCEP4W/hep36

```

1751 TCAATGTATA GATCTTCCAT ACCTACCAGT TCTGCGCCTG CAGCAATGCA
    AGTTACATAT CTAGAAGGTA TGGATGGTCA AGACGCGGAC GTCGTTACGT
1801 ACAACGTTGC CCGGATCTGC GATGATAAGC TGTCAAACAT GAGAATTGGT
    TGTTGCAACG GGCCTAGACG CTACTATTCTG ACAGTTTGTA CTCTTAACCA
1851 CGACTAGCTT GGCACGCCAG AAATCCGCGC GGTGGTTTTT GGGGGTCGGG
    GCTGATCGAA CCGTGCGGTC TTTAGGCGCG CCACCAAAAA CCCCCAGCCC
1901 GGTGTTTGGC AGCCACAGAC GCCCGGTGTT CGTGTCGCGC CAGTACATGC
    CCACAAACCG TCGGTGTCTG CGGGCCACAA GCACAGCGCG GTCATGTACG
1951 GGTCCATGCC CAGGCCATCC AAAAACCATG GGTCTGTCTG CTCAGTCCAG
    CCAGGTACGG GTCCGGTAGG TTTTGGTAC CCAGACAGAC GAGTCAGGTC
2001 TCGTGGAACA GACCCACGCG AACGCCCAA ATAATAACCC CCACGAACCA
    AGCACCCTGGT CTGGGGTGCG TTGCGGGTTT TATTATTGGG GGTGCTTGGT
2051 TAAACCATTC CCCATGGGGG ACCCCGTCCC TAACCCACGG GGCCAGTGGC
    ATTTGGTAAG GGGTACCCCC TGGGGCAGGG ATTGGGTGCC CCGGTCACCG
2101 TATGGCAGGG CCTGCCGCCC CGACGTTGGC TGCGAGCCCT GGGCCTTCAC
    ATACCGTCCC GGACGGCGGG GCTGCAACCG ACGCTCGGGA CCCGGAAGTG
2151 CCGAACTTGG GGGGTGGGGT GGGGAAAAGG AAGAAACGCG GGCCTATTGG
    GGCTTGAACC CCCACCCCA CCCCTTTTCC TTCTTTGCGC CCGCATAACC
2201 CCCCAATGGG GTCTCGGTGG GGTATCGACA GAGTGCCAGC CCTGGGACCG
    GGGGTTACCC CAGAGCCACC CCATAGCTGT CTCACGGTCG GGACCCTGGC
2251 AACCCCGCGT TTATGAACAA ACGACCCAAC ACCCGTGCGT TTTATTCTGT
    TTGGGGCGCA AATACTTGTT TGCTGGGTTG TGGGCACGCA AAATAAGACA
2301 CTTTTTATTG CCGTCATAGC GCGGGTTCCT TCCGGTATTG TCTCCTTCCG
    GAAAAATAAC GGCAGTATCG CGCCCAAGGA AGGCCATAAC AGAGGAAGGC
2351 TGTTTCAGTT AGCCTCCCCC ATCTCCCCTA TTCCTTTGCC CTCGGACGAG
    ACAAAGTCAA TCGGAGGGGG TAGAGGGGAT AAGGAAACGG GAGCCTGCTC
2401 TGCTGGGGCG TCGGTTTCCA CTATCGGCGA GTACTTCTAC ACAGCCATCG
    ACGACCCCGC AGCCAAAGGT GATAGCCGCT CATGAAGATG TGTCGGTAGC
2451 GTCCAGACGG CCGCGCTTCT GCGGGCGATT TGTGTACGCC CGACAGTCCC
    CAGGTCTGCC GGC CGAAGA CGCCCGCTAA ACACATGCGG GCTGTACGGG
2501 GGCTCCGGAT CGGACGATTG CGTCGCATCG ACCCTGCGCC CAAGCTGCAT
    CCGAGGCCTA GCCTGCTAAC GCAGCGTAGC TGGGACGCGG GTTCGACGTA
2551 CATCGAAATT GCCGTCAACC AAGCTCTGAT AGAGTTGGTC AAGACCAATG
    GTAGCTTTAA CGGCAGTTGG TTCGAGACTA TCTCAACCAG TTCTGGTTAC
2601 CGGAGCATAT ACGCCCGGAG CCGCGGCGAT CCTGCAAGCT CCGGATGCCT
    GCCTCGTATA TCGGGGCCCT GCGCGCGCTA GGACGTTCTGA GGCCTACGGA
2651 CCGCTCGAAG TAGCGCGTCT GCTGCTCCAT ACAAGCCAAC CACGGCCTCC
    GGCGAGCTTC ATCGCGCAGA CGACGAGGTA TGTTCCGGTTG GTGCCGGAGG
2701 AGAAGAAGAT GTTGGCGACC TCGTATTGGG AATCCCCGAA CATCGCCTCG
    TCTTCTTCTA CAACCGCTGG AGCATAACCC TTAGGGGCTT GTAGCGGAGC
2751 CTCCAGTCAA TGACCGCTGT TATGCGGCCA TTGTCCGTCA GGACATTGTT
    GAGGTCAGTT ACTGGCGACA ATACCCCGGT AACAGGCAGT CCTGTAACAA
2801 GGAGCCGAAA TCCGCGTGCA CGAGGTGCCG GACTTCGGGG CAGTCCTCGG
    CCTCGGCTTT AGGCGCACGT GCTCCACGGC CTGAAGCCCC GTCAGGAGCC
2851 CCCAAAGCAT CAGCTCATCG AGAGCCTGCG CGACGGACGC ACTGACGGTG
    GGGTTTCGTA GTCGAGTAGC TCTCGGACGC GCTGCCTGCG TGACTGCCAC

```

FIG. 11-4

pCEP4W/hep36

```

2901  TCGTCCATCA CAGTTTGCCA GTGATACACA TGGGGATCAG CAATCGCGCA
      AGCAGGTAGT GTCAAACGGT CACTATGTGT ACCCCTAGTC GTTAGCGCGT
2951  TATGAAATCA CGCCATGTAG TGTATTGACC GATTCCTTGC GGTCCGAATG
      ATACTTTAGT GCGGTACATC ACATAACTGG CTAAGGAACG CCAGGCTTAC
3001  GGCCGAACCC GCTCGTCTGG CTAAGATCGG CCGCAGCGAT CGCATCCATG
      CCGGCTTGGG CGAGCAGACC GATTCTAGCC GGCGTCGCTA GCGTAGGTAC
3051  GCCTCCGCGA CCGGCTGCAG AACAGCGGGC AGTTCGGTTT CAGGCAGGTC
      CGGAGGCGCT GGCCGACGTC TTGTCGCCCC TCAAGCCAAA GTCCGTCCAG
3101  TTGCAACGTG ACACCTGTG CACGGCGGGA GATGCAATAG GTCAGGCTCT
      AACGTTGCAC TGTGGGACAC GTGCCGCCCT CTACGTTATC CAGTCCGAGA
3151  CGCTGAATTC CCCAATGTCA AGCACTTCCG GAATCGGGAG CGCGGCCGAT
      GCGACTTAAG GGGTTACAGT TCGTGAAGGC CTTAGCCCTC GCGCCGGCTA
3201  GCAAAGTGCC GATAAACATA ACGATCTTTG TAGAAACCAT CGGCGCAGCT
      CGTTTCACGG CTATTTGTAT TGCTAGAAAC ATCTTTGGTA GCCGCGTCGA
3251  ATTTACCCGC AGGACATATC CACGCCCTCC TACATCGAAG CTGAAAGCAC
      TAAATGGGCG TCCTGTATAG GTGCGGGAGG ATGTAGCTTC GACTTTCGTG
3301  GAGATTCTTC GCCCTCCGAG AGCTGCATCA GGTCGGAGAC GCTGTCGAAC
      CTCTAAGAAG CGGGAGGCTC TCGACGTAGT CCAGCCTCTG CGACAGCTTG
3351  TTTTCGATCA GAAACTTCTC GACAGACGTC GCGGTGAGTT CAGGCTTTTTT
      AAAAGCTAGT CTTTGAAGAG CTGTCTGCAG CGCCACTCAA GTCCGAAAAA
3401  CATATCTCAT TGCCCGGGAT CTGCGGCACG CTGTTGACGC TGTTAAGCGG
      GTATAGAGTA ACGGGCCCTA GACGCCGTGC GACAACTGCG ACAATTCGCC
3451  GTCGCTGCAG GGTGCTCGG TGTTGAGGC CACACGCGTC ACCTTAATAT
      CAGCGACGTC CCAGCGAGCC ACAAGCTCCG GTGTGCGCAG TGGAATTATA
3501  GCGAAGTGGA CCTGGGACCG CGCCGCCCCG ACTGCATCTG CGTGTTCGAA
      CGCTTCACCT GGACCCTGGC GCGGCGGGGC TGACGTAGAC GCACAAGCTT
3551  TTCGCCAATG ACAAGACGCT GGGCGGGGTT TGTGTCATCA TAGAACTAAA
      AAGCGGTTAC TGTTCTGCGA CCCGCCCAA ACACAGTAGT ATCTTGATTT
3601  GACATGCAAA TATATTTCTT CCGGGGACAC CGCCAGCAAA CGCGAGCAAC
      CTGTACGTTT ATATAAGAA GGCCCTGTG GCGGTCGTTT GCGCTCGTTG
3651  GGGCCACGGG GATGAAGCAG GGCATGGCGG CCGACGCGCT GGGCTACGTC
      CCCGGTGCCC CTACTTCGTC CCGTACCGCC GGCTGCGCGA CCCGATGCAG
3701  TTGCTGGCGT TCGCGACGCG AGGCTGGATG GCCTTCCCCA TTATGATTCT
      AACGACCGCA AGCGCTGCGC TCCGACCTAC CGGAAGGGGT AATACTAAGA
3751  TCTCGCTTCC GCGGCGATCG GGATGCCCCG GTTGCAGGCC ATGCTGTCCA
      AGAGCGAAGG CCGCCGTAGC CCTACGGGCG CAACGTCCGG TACGACAGGT
3801  GGCAGGTAGA TGACGACCAT CAGGGACAGC TTCAAGGATC GCTCGCGGCT
      CCGTCCATCT ACTGCTGGTA GTCCCTGTCTG AAGTTCCTAG CGAGCGCCGA
3851  CTTACCAGCC TAACTTCGAT CACTGGACCG CTGATCGTCA CGGCGATTTA
      GAATGGTCGG ATTGAAGCTA GTGACCTGGC GACTAGCAGT GCCGCTAAAT
3901  TGCCGCCTCG GCGAGCACAT GGAACGGGTT GGCATGGATT GTAGGCGCCG
      ACGGCGGAGC CGCTCGTGTA CCTTGCCCAA CCGTACCTAA CATCCGCGGC
3951  CCCTATACCT TGTCTGCCTC CCCGCGTTGC GTCGCGGTGC ATGGAGCCGG
      GGGATATGGA ACAGACGGAG GGGCGCAACG CAGCGCCACG TACCTCGGCC
4001  GCCACCTCGA CCTGAATGGA AGCCGGCGGC ACCTCGCTAA CGGATTCACC
      CGGTGGAGCT GGACTTACCT TCGGCCGCCG TGGAGCGATT GCCTAAGTGG

```

FIG. 11-5

pCEP4W/hep36

```

4051  ACTCCAAGAA TTGGAGCCAA TCAATTCTTG CGGAGAACTG TGAATGCGCA
      TGAGGTTCCT AACCTCGGTT AGTTAAGAAC GCCTCTTGAC ACTTACGCGT
4101  AACCAACCCT TGGCAGAACA TATCCATCGC GTCCGCCATC TCCAGCAGCC
      TTGGTTGGGA ACCGTCTTGT ATAGGTAGCG CAGGCGGTAG AGGTTCGTCGG
4151  GCACGCGGCG CAGCAAAAGG CCAGGAACCG TAAAAAGGCC GCGTTGCTGG
      CGTGCGCCGC GTCGTTTTCC GGTCCCTTGGC ATTTTTCCGG CGCAACGACC
4201  CGTTTTTCCA TAGGCTCCGC CCCCTGACG AGCATCACAA AAATCGACGC
      GCAAAAAGGT ATCCGAGGCG GGGGGACTGC TCGTAGTGTT TTTAGCTGCG
4251  TCAAGTCAGA GGTGGCGAAA CCCGACAGGA CTATAAAGAT ACCAGGCGTT
      AGTTCAGTCT CCACCGCTTT GGGCTGTCTT GATATTTCTA TGGTCCGCAA
4301  TCCCCCTGGA AGCTCCCTCG TGCGCTCTCC TGTTCGACC CTGCCGCTTA
      AGGGGGACCT TCGAGGGAGC ACGCGAGAGG ACAAGGCTGG GACGGCGAAT
4351  CCGGATACCT GTCCGCCTTT CTCCCTTCGG GAAGCGTGGC GCTTCTCAT
      GGCTATGGA CAGGCGGAAA GAGGGAAGCC CTTCGCACCG CGAAAGAGTA
4401  AGCTCACGCT GTAGGTATCT CAGTTCGGTG TAGGTCGTTT GCTCCAAGCT
      TCGAGTGCGA CATCCATAGA GTCAAGCCAC ATCCAGCAAG CGAGGTTTCA
4451  GGGCTGTGTG CACGAACCCC CCGTTCAGCC CGACCGCTGC GCCTTATCCG
      CCCGACACAC GTGCTTGGGG GGCAAGTCGG GCTGGCGACG CGGAATAGGC
4501  GTAACATATCG TCTTGAGTCC AACCCGGTAA GACACGACTT ATCGCCACTG
      CATTGATAGC AGAACTCAGG TTGGGCCATT CTGTGCTGAA TAGCGGTGAC
4551  GCAGCAGCCA CTGGTAACAG GATTAGCAGA GCGAGGTATG TAGGCGGTGC
      CGTCGTCGGT GACCATTGTC CTAATCGTCT CGCTCCATAC ATCCGCCACG
4601  TACAGAGTTC TTGAAGTGGT GGCCTAACTA CGGCTACACT AGAAGGACAG
      ATGTCTCAAG AACTTCACCA CCGGATTGAT GCCGATGTGA TCTTCTGTG
4651  TATTTGGTAT CTGCGCTCTG CTGAAGCCAG TTACCTTCGG AAAAAGAGTT
      ATAAACCATA GACGCGAGAC GACTTCGGTC AATGGAAGCC TTTTCTCAA
4701  GGTAGCTCTT GATCCGGCAA ACAAAACCACC GCTGGTAGCG GTGGTTTTTT
      CCATCGAGAA CTAGGCCGTT TGTTTGGTGG CGACCATCGC CACCAAAAAA
4751  TGTTTGCAAG CAGCAGATTA CGCGCAGAAA AAAAGGATCT CAAGAAGATC
      ACAACGTTT GTCGTCTAAT GCGCGTCTTT TTTTCCTAGA GTTCTTCTAG
4801  CTTTGATCTT TTCTACGGGG TCTGACGCTC AGTGGAACGA AACTCACGT
      GAAACTAGAA AAGATGCCCC AGACTGCGAG TCACCTTGCT TTTGAGTGCA
4851  TAAGGGATTT TGGTCATGAG ATTATCAAAA AGGATCTTCA CCTAGATCCT
      ATTCCCTAAA ACCAGTACTC TAATAGTTTT TCCTAGAAGT GGATCTAGGA
4901  TTTAAATTAA AAATGAAGTT TTAAATCAAT CTAAAGTATA TATGAGTAAA
      AAATTTAATT TTTACTTCAA AATTTAGTTA GATTTTCATAT ATACTCATTT
4951  CTTGGTCTGA CAGTTACCAA TGCTTAATCA GTGAGGCACC TATCTCAGCG
      GAACCAGACT GTCAATGGTT ACGAATTAGT CACTCCGTGG ATAGAGTCGC
5001  ATCTGTCTAT TTCGTTTCATC CATAGTTGCC TGACTCCCCG TCGTGTAGAT
      TAGACAGATA AAGCAAGTAG GTATCAACGG ACTGAGGGGC AGCACATCTA
5051  AACTACGATA CGGGAGGGCT TACCATCTGG CCCAGTGCT GCAATGATAC
      TTGATGCTAT GCCCTCCCGA ATGGTAGACC GGGGTCACGA CGTTACTATG
5101  CGCGAGACCC ACGCTCACCG GCTCCAGATT TATCAGCAAT AAACCAGCCA
      GCGCTCTGGG TGCGAGTGGC CGAGGTCTAA ATAGTCGTTA TTTGGTCGGT
5151  GCCGGAAGGG CCGAGCGCAG AAGTGGTCCT GCAACTTTAT CCGCCTCCAT
      CGGCCTTCCC GGCTCGCGTC TTCACCAGGA CGTTGAAATA GGCGGAGGTA

```

FIG. 11-6

pCEP4W/hep36

```

5201  CCAGTCTATT AATTGTTGCC GGGAAAGCTAG AGTAAGTAGT TCGCCAGTTA
      GGTCAGATAA TTAACAACGG CCTTTCGATC TCATTCATCA AGCGGTCAAT
5251  ATAGTTTGCG CAACGTTGTT GCCATTGCTG CAGGCATCGT GGTGTCACGC
      TATCAAACGC GTTGCAACAA CGGTAACGAC GTCCGTAGCA CCACAGTGCG
5301  TCGTCGTTTG GTATGGCTTC ATTCAGCTCC GGTTCCCAAC GATCAAGGCG
      AGCAGCAAAC CATACCGAAG TAAGTCGAGG CCAAGGGTTG CTAGTTCCGC
5351  AGTTACATGA TCCCCCATGT TGTGCAAAAA AGCGGTTAGC TCCTTCGGTC
      TCAATGTACT AGGGGGTACA ACACGTTTTT TCGCCAATCG AGGAAGCCAG
5401  CTCCGATCGT TGTCAGAAAGT AAGTTGGCCG CAGTGTTATC ACTCATGGTT
      GAGGCTAGCA ACAGTCTTCA TTCAACCGGC GTCACAATAG TGAGTACCAA
5451  ATGGCAGCAC TGCATAATTC TCTTACTGTC ATGCCATCCG TAAGATGCTT
      TACCGTCGTG ACGTATTAAG AGAATGACAG TACGGTAGGC ATTCTACGAA
5501  TTCTGTGACT GGTGAGTACT CAACCAAGTC ATTCTGAGAA TAGTGTATGC
      AAGACACTGA CCACTCATGA GTTGGTTCAG TAAGACTCTT ATCACATACG
5551  GCGGACCGAG TTGCTCTTGC CCGGCGTCAA CACGGGATAA TACCGCGCCA
      CCGCTGGCTC AACGAGAACG GGCCGCAGTT GTGCCCTATT ATGGCGCGGT
5601  CATAGCAGAA CTTTAAAAGT GCTCATCATT GGAAAACGTT CTTCGGGGCG
      GTATCGTCTT GAAATTTTCA CGAGTAGTAA CCTTTTGCAA GAAGCCCCGC
5651  AAAACTCTCA AGGATCTTAC CGCTGTTGAG ATCCAGTTTCG ATGTAACCCA
      TTTTGAGAGT TCCTAGAATG GCGACAACTC TAGGTCAAGC TACATTGGGT
5701  CTCGTGCACC CAACTGATCT TCAGCATCTT TTACTTTTAC CAGCGTTTCT
      GAGCACGTGG GTTGACTAGA AGTCGTAGAA AATGAAAGTG GTCGCAAAGA
5751  GGGTGAGCAA AAACAGGAAG GCAAAATGCC GCAAAAAGG GAATAAGGGC
      CCCACTCGTT TTTGTCCCTC CGTTTACGG CGTTTTTTCC CTTATTCCCG
5801  GACACGGAAT TGTGAATAC TCATACTCTT CCTTTTTTCAA TATTATTGAA
      CTGTGCCTTT ACAACTTATG AGTATGAGAA GGAAAAGTT ATAATAACTT
5851  GCATTTATCA GGGTTATTGT CTCATGAGCG GATACATATT TGAATGTATT
      CGTAAATAGT CCCAATAACA GAGTACTCGC CTATGTATAA ACTTACATAA
5901  TAGAAAAATA AACAAATAGG GGTTCGCGC ACATTTCCCC GAAAAGTGCC
      ATCTTTTTAT TTGTTTATCC CCAAGGCGCG TGTAAGGGG CTTTTACGG
5951  ACCTGACGTC TAAGAAACCA TTATTATCAT GACATTAACC TATAAAAATA
      TGGACTGCAG ATTCTTTGGT AATAATAGTA CTGTAATTGG ATATTTTTAT
6001  GGCGTATCAC GAGGCCCTTT CGTCTTCAAG AATTCTCATG TTTGACAGCT
      CCGCATAGTG CTCCGGGAAA GCAGAAAGTC TTAAGAGTAC AAAGTGTCGA
6051  TATCATCGAT AAGCTGATCC TCACAGGCCG CACCCAGCTT TTCTTCCGTT
      ATAGTAGCTA TTCGACTAGG AGTGTCCGGC GTGGGTCGAA AAGAAGGCAA
6101  GCCCCAGTAG CATCTCTGTC TGGTGACCTT GAAGAGGAAG AGGAGGGGTC
      CGGGGTCATC GTAGAGACAG ACCACTGGAA CTCTCCTTC TCCTCCCCAG
6151  CCGAGAATCC CCATCCCTAC CGTCCAGCAA AAAGGGGGAC GAGGAATTTG
      GGCTCTTAGG GGTAGGGATG GCAGGTCGTT TTTCCCCCTG CTCCTTAAAC
6201  AGGCCTGGCT TGAGGCTCAG GACGCAAATC TTGAGGATGT TCAGCGGGAG
      TCCGGACCGA ACTCCGAGTC CTGCGTTTAG AACTCCTACA AGTCGCCCTC
6251  TTTTCCGGGC TGCGAGTAAT TGGTGATGAG GACGAGGATG GTTCGGAGGA
      AAAAGGCCCG ACGCTCATTA ACCACTACTC CTGCTCCTAC CAAGCCTCCT
6301  TGGGGAATTT TCAGACCTGG ATCTGTCTGA CAGCGACCAT GAAGGGGATG
      ACCCCTTAAA AGTCTGGACC TAGACAGACT GTCGCTGGTA CTTCCCTTAC

```

FIG. 11-7

pCEP4W/hep36

```

6351  AGGGTGGGGG GGCTGTTGGA GGGGGCAGGA GTCTGCACTC CCTGTATTCA
      TCCCAACCCC CCGACAACCT CCCCCGTCCT CAGACGTGAG GGACATAAGT
6401  CTGAGCGTCG TCTAATAAAG ATGTCTATTG ATCTCTTTTA GTGTGAATCA
      GACTCGCAGC AGATTATTTC TACAGATAAC TAGAGAAAAT CACACTTAGT
6451  TGTCTGACGA GGGGCCAGGT ACAGGACCTG GAAATGGCCT AGGAGAGAAG
      ACAGACTGCT CCCCCGTCCA TGTCTTGGAC CTTTACCGGA TCCTCTCTTC
6501  GGAGACACAT CTGGACCAGA AGGCTCCGGC GGCAGTGGAC CTCAAAGAAG
      CCTCTGTGTA GACCTGGTCT TCCGAGGCCG CCGTCACCTG GAGTTTCTTC
6551  AGGGGGTGAT AACCATGGAC GAGGACGGGG AAGAGGACGA GGACGAGGAG
      TCCCCACTA TTGGTACCTG CTCCTGCCCC TTCTCCTGCT CCTGCTCCTC
6601  GCGGAAGACC AGGAGCCCCG GCGGCTCAG GATCAGGGCC AAGACATAGA
      CGCCTTCTGG TCCTCGGGGC CCGCCGAGTC CTAGTCCCGG TTCTGTATCT
6651  GATGGTGTCC GGAGACCCCA AAAACGTCCA AGTTGCATTG GCTGCAAAGG
      CTACCACAGG CCTCTGGGGT TTTTGCAGGT TCAACGTAAC CGACGTTTCC
6701  GACCCACGGT GGAACAGGAG CAGGAGCAGG AGCGGGAGGG GCAGGAGCAG
      CTGGGTGCCA CTTTGTCTTC GTCCTCGTCC TCGCCCTCCC CGTCTCTGTC
6751  GAGGGGCAGG AGCAGGAGGA GGGGCAGGAG CAGGAGGAGG GGCAGGAGGG
      CTCCCCGTCC TCGTCCTCCT CCCCCGTCCT GTCCTCCTCC CCGTCCTCCC
6801  GCAGGAGGGG CAGGAGGGGC AGGAGCAGGA GGAGGGGCAG GAGCAGGAGG
      CGTCCTCCCC GTCCTCCCCG TCCTCGTCCT CCTCCCCGTC CTCGTCCTCC
6851  AGGGGCAGGA GGGGCAGGAG GGGCAGGAGC AGGAGGAGGG GCAGGAGCAG
      TCCCCGTCCT CCCCCGTCCT CCGTCCTCG TCCTCCTCCC CGTCTCTGTC
6901  GAGGAGGGGC AGGAGGGGCA GGAGCAGGAG GAGGGGCAGG AGGGGCAGGA
      CTCTCCCCCG TCCTCCCCGT CCTCGTCCTC CTCCCCGTCC TCCCCGTCCT
6951  GGGGCAGGAG CAGGAGGAGG GGCAGGAGCA GGAGGAGGGG CAGGAGGGGC
      CCCCCGTCCT GTCCTCCTCC CCGTCCTCGT CCTCCTCCCC GTCCTCCCCG
7001  AGGAGCAGGA GGAGGGGCAG GAGGGGCAGG AGGGGCAGGA GCAGGAGGAG
      TCCTCGTCCT CCTCCCCGTC CTCCCCGTCC TCCCCGTCCT CGTCTCTCTC
7051  GGGCAGGAGC AGGAGGGGCA GGAGGGGCAG GAGGGGCAGG AGCAGGAGGG
      CCCGTCCTCG TCCTCCCCGT CCTCCCCGTC CTCCCCGTCC TCGTCCTCCC
7101  GCAGGAGCAG GAGGAGGGGC AGGAGGGGCA GGAGGGGCAG GAGCAGGAGG
      CGTCCTCGTC CTCTCCCCG TCCTCCCCGT CCTCCCCGTC CTCGTCCTCC
7151  GGCAGGAGCA GGAGGGGCAG GAGCAGGAGG GGCAGGAGCA GGAGGGGCAG
      CCGTCCTCGT CCTCCCCGTC CTCGTCCTCC CCGTCCTCGT CCTCCCCGTC
7201  GAGGGGCAGG AGCAGGAGGG GCAGGAGGGG CAGGAGCAGG AGGGGCAGGA
      CTCCCCGTCC TCGTCCTCCC CGTCCTCCCC GTCCTCGTCC TCCCCGTCCT
7251  GGGGCAGGAG CAGGAGGAGG GGCAGGAGGG GCAGGAGCAG GAGGAGGGGC
      CCCCCGTCCT GTCCTCCTCC CCGTCCTCCC CGTCCTCGTC CTCTCCCCCG
7301  AGGAGGGGCA GGAGCAGGAG GGGCAGGAGG GGCAGGAGCA GGAGGGGCAG
      TCCTCCCCGT CCTCGTCCTC CCGTCCTCC CCGTCCTCGT CCTCCCCGTC
7351  GAGGGGCAGG AGCAGGAGGG GCAGGAGGGG CAGGAGCAGG AGGAGGGGCA
      CTCCCCGTCC TCGTCCTCCC CGTCCTCCCC GTCCTCGTCC TCCTCCCCGT
7401  GGAGCAGGAG GGGCAGGAGC AGGAGGTGGA GGCCGGGGTC GAGGAGGCAG
      CCTCGTCCTC CCGTCCTCG TCCTCCACCT CCGGCCCCAG CTCTCCCGTC
7451  TGGAGGCCGG GGTGAGGAGG GTAGTGGAGG CCGGGGTCGA GGAGGTAGTG
      ACCTCCGGCC CCAGCTCCTC CATCACCTCC GGCCCCAGCT CCTCCATCA

```

FIG. 11-8

pCEP4W/hep36

```

7501  GAGGCCGCCG GGGTAGAGGA CGTGAAAGAG CCAGGGGGGG AAGTCGTGAA
      CTCCGGCGGC CCCATCTCCT GCACTTTCTC GGTCCCCCCC TTCAGCACTT
7551  AGAGCCAGGG GGAGAGGTCG TGGACGTGGA GAAAAGAGGC CCAGGAGTCC
      TCTCGGTCCC CCTCTCCAGC ACCTGCACCT CTTTCTCCG GTCTCTCAGG
7601  CAGTAGTCAG TCATCATCAT CCGGGTCTCC ACCGCGCAGG CCCCCTCCAG
      GTCATCAGTC AGTAGTAGTA GGCCAGAGG TGGCGCGTCC GGGGGAGGTC
7651  GTAGAAGGCC ATTTTTCAC CCTGTAGGGG AAGCCGATTA TTTTGAATAC
      CATCTTCCGG TAAAAAGGTG GGACATCCCC TTCGGCTAAT AAAACTTATG
7701  CACCAAGAAG GTGGCCAGA TGGTGAGCCT GACGTGCCCC CGGGAGCGAT
      GTGGTTCTTC CACCGGTCT ACCACTCGGA CTGCACGGGG GCCCTCGCTA
7751  AGAGCAGGGC CCCGCAGATG ACCCAGGAGA AGGCCAAGC ACTGGACCCC
      TCTCGTCCC GGGCGTCTAC TGGGTCTCT TCCGGGTTCG TGACCTGGGG
7801  GGGGTCAGGG TGATGGAGGC AGGCGCAAAA AAGGAGGGTG GTTTGAAAG
      CCCAGTCCC ACTACCTCCG TCCGCGTTTT TTCTCCAC CAAACCTTTC
7851  CATCGTGATC AAGGAGGTTT CAACCCGAAA TTTGAGAAC TTGCAGAAGG
      GTAGCACCAG TTCTCCAAG GTTGGGCTTT AAACCTTGT AACGTCTTCC
7901  TTTAAGAGCT CTCCTGGCTA GGAGTCACGT AGAAAGGACT ACCGACGAAG
      AAATTCTCGA GAGGACCGAT CCTCAGTGCA TCTTCTCTGA TGGCTGCTTC
7951  GAACTTGGGT CGCCGGTGTG TTCGTATATG GAGGTAGTAA GACCTCCCTT
      CTTGAACCCA GCGGCCACAC AAGCATATAC CTCCATCATT CTGGAGGGAA
8001  TACAACCTAA GGCGAGGAAC TGCCCTTGCT ATTCCACAAT GTCGTCTTAC
      ATGTTGGATT CCGCTCCTTG ACGGGAACGA TAAGGTGTTA CAGCAGAATG
8051  ACCATTGAGT CGTCTCCCCT TTGGAATGGC CCCTGGACCC GGCCACAAC
      TGGTAACTCA GCAGAGGGGA AACCTTACCG GGGACCTGGG CCGGGTGTG
8101  CTGGCCCGCT AAGGGAGTCC ATTGTCTGTT ATTTTCATGGT CTTTTTACAA
      GACCGGGCGA TTCCCTCAGG TAACAGACAA TAAAGTACCA GAAAAATGTT
8151  ACTCATATAT TTGCTGAGGT TTTGAAGGAT GCGATTAAGG ACCTTGTTAT
      TGAGTATATA AACGACTCCA AAACCTCCTA CGCTAATTCC TGGAACAATA
8201  GACAAAGCCC GCTCCTACCT GCAATATCAG GGTGACTGTG TGCAGCTTTG
      CTGTTTCGGG CGAGGATGGA CGTTATAGTC CCACTGACAC ACCTCGAAAC
8251  ACGATGGAGT AGATTTGCCT CCCTGGTTTC CACCTATGGT GGAAGGGGCT
      TGCTACCTCA TCTAAACGGA GGGACCAAAG GTGGATACCA CCTTCCCCGA
8301  GCCGCGGAGG GTGATGACGG AGATGACGGA GATGAAGGAG GTGATGGAGA
      CGGCGCCTCC CACTACTGCC TCTACTGCCT CTACTTCTC CACTACCTCT
8351  TGAGGGTGAG GAAGGGCAGG AGTGATGTAA CTTGTTAGGA GACGCCCTCA
      ACTCCCCTC CTTCCCGTCC TCACTACATT GAACAATCCT CTGCGGGAGT
8401  ATCGTATTAA AAGCCGTGTA TTCCCCCGCA CTAAAGAATA AATCCCCAGT
      TAGCATAATT TTCGGCACAT AAGGGGGCGT GATTTCTTAT TTAGGGGTCA
8451  AGACATCATG CGTGCTGTTG GTGTATTTCT GGCCATCTGT CTTGTACCA
      TCTGTAGTAC GCACGACAAC CACATAAAGA CCGGTAGACA GAACAGTGGT
8501  TTTTCGTCTT CCCAACATGG GGCAATTGGG CATACCCATG TTGTCACGTC
      AAAAGCAGGA GGGTTGTACC CCGTTAACCC GTATGGGTAC AACAGTGCAG
8551  ACTCAGCTCC GCGCTCAACA CCTTCTCGCG TTGGAAAACA TTAGCGACAT
      TGAGTCGAGG CGCGAGTTGT GGAAGAGCGC AACCTTTTGT AATCGCTGTA
8601  TTACCTGGTG AGCAATCAGA CATGCGACGG CTTTAGCCTG GCCTCCTTAA
      AATGGACCAC TCGTTAGTCT GTACGCTGCC GAAATCGGAC CGGAGGAATT

```

FIG. 11-9

pCEP4W/hep36

```

8651  ATTCACCTAA GAATGGGAGC AACCAGCATG CAGGAAAAGG ACAAGCAGCG
      TAAGTGGATT CTTACCCTCG TTGGTCGTAC GTCCTTTTCC TGTTCGTCGC
8701  AAAATTACAG CCCCTTGGG AGGTGGCGGC ATATGCAAAG GATAGCACTC
      TTTTAAGTGC GGGGGAACCC TCCACGCGCG TATACGTTTC CTATCGTGAG
8751  CCACTCTACT ACTGGGTATC ATATGCTGAC TGTATATGCA TGAGGATAGC
      GGTGAGATGA TGACCCATAG TATACGACTG ACATATACGT ACTCCTATCG
8801  ATATGCTACC CGGATACAGA TTAGGATAGC ATATACTACC CAGATATAGA
      TATACGATGG GCCTATGTCT AATCCTATCG TATATGATGG GTCTATATCT
8851  TTAGGATAGC ATATGCTACC CAGATATAGA TTAGGATAGC CTATGCTACC
      AATCCTATCG TATACGATGG GTCTATATCT AATCCTATCG GATACGATGG
8901  CAGATATAAA TTAGGATAGC ATATACTACC CAGATATAGA TTAGGATAGC
      GTCTATATTT AATCCTATCG TATATGATGG GTCTATATCT AATCCTATCG
8951  ATATGCTACC CAGATATAGA TTAGGATAGC CTATGCTACC CAGATATAGA
      TATACGATGG GTCTATATCT AATCCTATCG GATACGATGG GTCTATATCT
9001  TTAGGATAGC ATATGCTACC CAGATATAGA TTAGGATAGC ATATGCTATC
      AATCCTATCG TATACGATGG GTCTATATCT AATCCTATCG TATACGATAG
9051  CAGATATTTG GGTAGTATAT GCTACCCAGA TATAAATTAG GATAGCATAT
      GTCTATAAAC CCATCATATA CGATGGGTCT ATATTTAATC CTATCGTATA
9101  ACTACCCTAA TCTCTATTAG GATAGCATAT GCTACCCGGA TACAGATTAG
      TGATGGGATT AGAGATAATC CTATCGTATA CGATGGGCCT ATGTCTAATC
9151  GATAGCATAT ACTACCCAGA TATAGATTAG GATAGCATAT GCTACCCAGA
      CTATCGTATA TGATGGGTCT ATATCTAATC CTATCGTATA CGATGGGTCT
9201  TATAGATTAG GATAGCCTAT GCTACCCAGA TATAAATTAG GATAGCATAT
      ATATCTAATC CTATCGGATA CGATGGGTCT ATATTTAATC CTATCGTATA
9251  ACTACCCAGA TATAGATTAG GATAGCATAT GCTACCCAGA TATAGATTAG
      TGATGGGTCT ATATCTAATC CTATCGTATA CGATGGGTCT ATATCTAATC
9301  GATAGCCTAT GCTACCCAGA TATAGATTAG GATAGCATAT GCTATCCAGA
      CTATCGGATA CGATGGGTCT ATATCTAATC CTATCGTATA CGATAGGTCT
9351  TATTTGGGTA GTATATGCTA CCCATGGCAA CATTAGCCCA CCGTGCTCTC
      ATAAACCCAT CATATACGAT GGGTACCGTT GTAATCGGGT GGCACGAGAG
9401  AGCGACCTCG TGAATATGAG GACCAACAAC CCTGTGCTTG GCGCTCAGGC
      TCGCTGGAGC ACTTATACTC CTGGTTGTTG GGACACGAAC CGCGAGTCCG
9451  GCAAGTGTGT GTAATTTGTC CTCCAGATCG CAGCAATCGC GCCCCTATCT
      CGTTCACACA CATTAAACAG GAGGTCTAGC GTCGTTAGCG CGGGGATAGA
9501  TGGCCCGCCC ACCTACTTAT GCAGGTATTC CCCGGGGTGC CATTAGTGGT
      ACCGGGCGGG TGGATGAATA CGTCCATAAG GGGCCCCACG GTAATCACCA
9551  TTTGTGGGCA AGTGGTTTGA CCGCAGTGGT TAGCGGGGTT ACAATCAGCC
      AAACACCCGT TCACCAAACCT GGCGTCACCA ATCGCCCCAA TGTTAGTCGG
9601  AAGTTATTAC ACCCTTATTT TACAGTCCAA AACC GCAGGG CCGCGTGTTG
      TTCAATAATG TGGGAATAAA ATGTCAGGTT TTGGCGTCCC GCCGCACACC
9651  GGGCTGACGC GTGCCCCAC TCCACAATTT CAAAAAAAAG AGTGGCCACT
      CCCGACTGCG CACGGGGGTG AGGTGTTAAA GTTTTTTTTC TCACCGTGTA
9701  TGTCTTTGTT TATGGGCCCC ATTGGCGTGG AGCCCCGTTT AATTTTCGGG
      ACAGAAACAA ATACCGGGG TAACCGCACC TCGGGGCAAA TTAAGAGCCC
9751  GGTGTTAGAG ACAACAGTG GAGTCCGCTG CTGTCGGCGT CCACTCTCTT
      CCACAATCTC TGTGGGTCAC CTCAGGCGAC GACAGCCGCA GGTGAGAGAA

```

FIG. 11-10

pCEP4W/hep36

```

9801  TCCCCTTGTT  ACAAATAGAG  TGTAACAACA  TGGTTCACCT  GTCCTGGTCC
      AGGGGAACAA  TGTTTATCTC  ACATTGTTGT  ACCAAGTGGA  CAGAACCAGG
9851  CTGCCTGGGA  CACATCTTAA  TAACCCCAAG  ATCATATTGC  ACTAGGATTA
      GACGGACCCT  GTGTAGAATT  ATTGGGGTCA  TAGTATAACG  TGATCCTAAT
9901  TGTGTTGCCC  ATAGCCATAA  ATTCGTGTGA  GATGGACATC  CAGTCTTTAC
      ACACAACGGG  TATCGGTATT  TAAGCACACT  CTACCTGTAG  GTCAGAAATG
9951  GGCTTGTTCC  CACCCCATGG  ATTTCTATTG  TTAAAGATAT  TCAGAATGTT
      CCGAACAGGG  GTGGGGTACC  TAAAGATAAC  AATTTCTATA  AGTCTTACAA
10001 TCATTCCCTAC  ACTAGTATTT  ATTGCCCAAG  GGGTTTGTGA  GGGTTATATT
      AGTAAGGATG  TGATCATAAA  TAACGGGTTC  CCCAAACACT  CCCAATATAA
10051 GGTGTCATAG  CACAATGCCA  CCACTGAACC  CCCCGTCCAA  ATTTTATTCT
      CCACAGTATC  GTGTTACGGT  GGTGACTTGG  GGGGCAGGTT  TAAAATAAGA
10101 GGGGGCGTCA  CCTGAAACCT  TGTTTTCGAG  CACCTCACAT  ACACCTTACT
      CCCCCGAGT  GGACTTTGGA  ACAAAAGCTC  GTGGAGTGTA  TGTGGAATGA
10151 GTTCACAAC  CAGCAGTTAT  TCTATTAGCT  AAACGAAGGA  GAATGAAGAA
      CAAGTGTTGA  GTCGTCAATA  AGATAATCGA  TTTGCTTCCT  CTTACTTCTT
10201 GCAGGCGAAG  ATTCAGGAGA  GTTCACTGCC  CGCTCCTTGA  TCTTCAGCCA
      CGTCCGCTTC  TAAGTCCTCT  CAAGTGACGG  GCGAGGAAC  AGAAGTCGGT
10251 CTGCCCTTGT  GACTAAAATG  GTTCACTACC  CTCGTGGAAT  CCTGACCCCA
      GACGGGAACA  CTGATTTTAC  CAAGTGATGG  GAGCACCTTA  GGACTGGGGT
10301 TGTAAATAAA  ACCGTGACAG  CTCATGGGGT  GGGAGATATC  GCTGTTCCCT
      ACATTTATTT  TGGCACTGTC  GAGTACCCCA  CCCTCTATAG  CGACAAGGAA
10351 AGGACCCTTT  TACTAACCCT  AATTCGATAG  CATATGCCTC  CCGTTGGGTA
      TCCTGGGAAA  ATGATTGGGA  TTAAGCTATC  GTATACGAAG  GGCAACCCAT
10401 ACATATGCTA  TTGAATTAGG  GTTAGTCTGG  ATAGTATATA  CTACTACCCG
      TGTATACGAT  AACTTAATCC  CAATCAGACC  TATCATATAT  GATGATGGGC
10451 GGAAGCATAT  GCTACCCGTT  TAGGGTTAAC  AAGGGGGCCT  TATAAACACT
      CCTTCGTATA  CGATGGGCAA  ATCCCAATTG  TTCCCCCGGA  ATATTTGTGA
10501 ATTGCTAATG  CCCTCTTGAG  GGTCCGCTTA  TCGGTAGCTA  CACAGGCCCC
      TAACGATTAC  GGGAGAACTC  CCAGGCGAAT  AGCCATCGAT  GTGTCCGGGG
10551 TCTGATTGAC  GTTGGTGTAG  CCTCCCCTAG  TCTTCCTGGG  CCCCTGGGAG
      AGACTAACTG  CAACCACATC  GGAGGGCATC  AGAAGGACCC  GGGGACCCCT
10601 GTACATGTCC  CCCAGCATTG  GTGTAAGAGC  TTCAGCCAAG  AGTTACACAT
      CATGTACAGG  GGGTCGTAAC  CACATTCTCG  AAGTCGGTTC  TCAATGTGTA
10651 AAAGGCAATG  TTGTGTTGCA  GTCCACAGAC  TGCAAAGTCT  GCTCCAGGAT
      TTTCCGTTAC  AACACAACGT  CAGGTGTCTG  ACGTTTCAGA  CGAGGTCCTA
10701 GAAAGCCACT  CAGTGTGGC  AAATGTGCAC  ATCCATTTAT  AAGGATGTCA
      CTTTCGGTGA  GTCACAACCG  TTTACACGTG  TAGGTAAATA  TTCCTACAGT
10751 ACTACAGTCA  GAGAACCCTT  TTGTGTTTGG  TCCCCCCCCG  TGTCACATGT
      TGATGTCAGT  CTCTTGGGGA  AACACAAACC  AGGGGGGGGC  ACAGTGTACA
10801 GGAACAGGGC  CCAGTTGGCA  AGTTGTACCA  ACCAACTGAA  GGGATTACAT
      CCTGTCCCG  GGTCAACCGT  TCAACATGGT  TGGTTGACTT  CCCTAATGTA
10851 GCACTGCCCC  GCGAAGAAGG  GGCAGAGATG  CCGTAGTCAG  GTTTAGTTTCG
      CGTGACGGGG  CGCTTCTTCC  CCGTCTCTAC  GGCATCAGTC  CAAATCAAGC
10901 TCCGGCGGCG  GGGCTCTAGA  GTCGACCGGT  CATGGCTGCG  CCCCACACC
      AGGCCGCCGC  CCCGAGATCT  CAGCTGGCCA  GTACCGACGC  GGGGCTGTGG

```

FIG. 11-11

pCEP4W/hep36

```

10951  CGCCAACACC  CGCTGACGCG  CCCTGACGGG  CTTGTCTGCT  CCCGGCATCC
      GCGGTTGTGG  GCGACTGCGC  GGGACTGCCC  GAACAGACGA  GGGCCGTAGG
11001  GCTTACAGAC  AAGCTGTGAC  CGTCTCCGGG  AGCTGCATGT  GTCAGAGGTT
      CGAATGTCTG  TTCGACACTG  GCAGAGGCCC  TCGACGTACA  CAGTCTCCAA
11051  TTCACCGTCA  TCACCGAAAC  GCGCGAGGCA  GCCGGATCAT  AATCAGCCAT
      AAGTGGCAGT  AGTGGCTTTG  CGCGCTCCGT  CGGCCTAGTA  TTAGTCGGTA
11101  ACCACATTTG  TAGAGGTTTT  ACTTGCTTTA  AAAAACCTCC  CCACCTCCCC
      TGGTGTA AAC  ATCTCCAAAA  TGAACGAAAT  TTTTGTGGAGG  GGTGGAGGGG
11151  CTGAACCTGA  AACATAAAAT  GAATGCAATT  GTTGTGTGTA  ACTTGTTTAT
      GACTTGGA CT  TTGTATTTTA  CTTACGTTAA  CAACAACAAT  TGAACAAATA
11201  TGCAGCTTAT  AATGGTTACA  AATAAAGCAA  TAGCATCACA  AATTTACAAA
      ACGTCGAATA  TTACCAATGT  TTATTTTCGT  ATCGTAGTGT  TTAAAGTGTT
11251  ATAAAGCATT  TTTTTCAC TG  CATTCTAGTT  GTGGTTTGTC  CAAACTCATC
      TATTTTCGTA  AAAAAGTGAC  GTAAGATCAA  CACCAAACAG  GTTTGAGTAG
11301  AATGTATCTT  ATCATGTCTG  GATCCACAGT  GCAGGCGGGG  AGGCGGCCCA
      TTACATAGAA  TAGTACAGAC  CTAGGGTGCA  CGTCCGCCCC  TCCGCGGGGT
11351  AAGGGAGATC  CGACTCGTCT  GAGGGCGAAG  GCGAAGACGC  GGAAGAGGCC
      TTCCCTCTAG  GCTGAGCAGA  CTCCCGCTTC  CGCTTCTGCG  CCTTCTCCGG
11401  GCAGAGCCGG  CAGCAGGCCG  CGGGAAGGAA  GGTCCGCTGG  ATTGAGGGCC
      CGTCTCGGCC  GTCGTCCGGC  GCCCTTCCTT  CCAGGCGACC  TAACTCCCGG
11451  GAAGGGACGT  AGCAGAAGGA  CGTCCCGCGC  AGAATCCAGG  TGGCAACACA
      CTTCCCTGCA  TCGTCTTCCT  GCAGGGCGCG  TCTTAGGTCC  ACCGTTGTGT
11501  GGCGAGCAGC  CAAGGAAAAG  ACGATGATTT  CCCCAGACAAC  ACCACGGAAT
      CCGCTCGTCT  GTTCCTTTCC  TGCTACTAAA  GGGGCTGTTG  TGGTGCCTTA
11551  TGTCAGTGCC  CAACAGCCGA  GCCCCGTGTC  AGCAGCGGGC  AAGGCAGGCG
      ACAGTCACGG  GTTGTCGGCT  CGGGGACAGG  TCGTCGCCCC  TTCCGTCCGC
11601  GCGATGAGTT  CCGCCGTGGC  AATAGGGAGG  GGGAAAGCGA  AAGTCCCGGA
      CGCTACTCAA  GGCGGCACCG  TTATCCCTCC  CCCTTTCGCT  TTCAGGGCCT
11651  AAGGAGCTGA  CAGGTGGTGG  CAATGCCCCA  ACCAGTGGGG  GTTGCCTCAG
      TTCCTCGACT  GTCCACCACC  GTTACGGGGT  TGGTCACCCC  CAACGCAGTC
11701  CAAACACAGT  GCACACCACG  CCACGTTGCC  TGACAACGGG  CCACA ACTCC
      GTTTGTGTCA  CGTGTGGTGC  GGTGCAACGG  ACTGTTGCC  GGTGTTGAGG
11751  TCATAAAGAG  ACAGCAACCA  GGATTTATAC  AAGGAGGAGA  AAATGAAAGC
      AGTATTTCTC  TGTCGTTGGT  CCTAAATATG  TTCCTCCTCT  TTTACTTTCT
11801  CATAACGGGA  GCAATAGCAT  GATACAAAGG  CATTAAAGCA  GCGTATCCAC
      GTATGCCCTT  CGTTATCGTA  CTATGTTTCC  GTAATTTCTG  CGCATAGGTG
11851  ATAGCGTAAA  AGGAGCAACA  TAGTTAAGAA  TACCAGTCAA  TCTTTCACAA
      TATCGCATTT  TCCTCGTTGT  ATCAATTCTT  ATGGTCAGTT  AGAAAGTGTT
11901  ATTTTGTAAT  CCAGAGGTTG  ATTC
      TAAAACATTA  GGTCTCCAAC  TAAG

```

FIG. 12

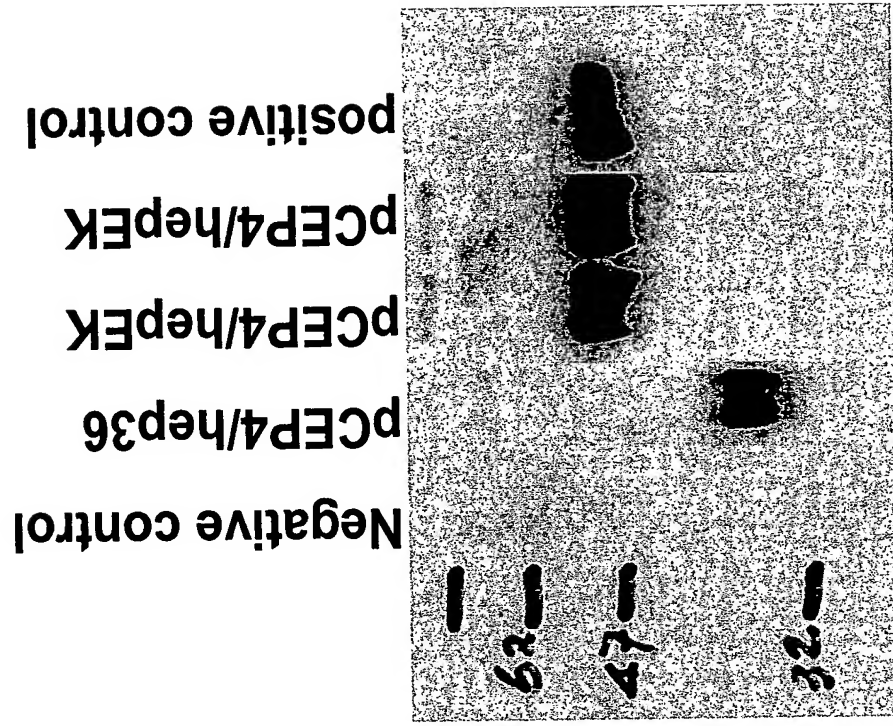


FIG. 13

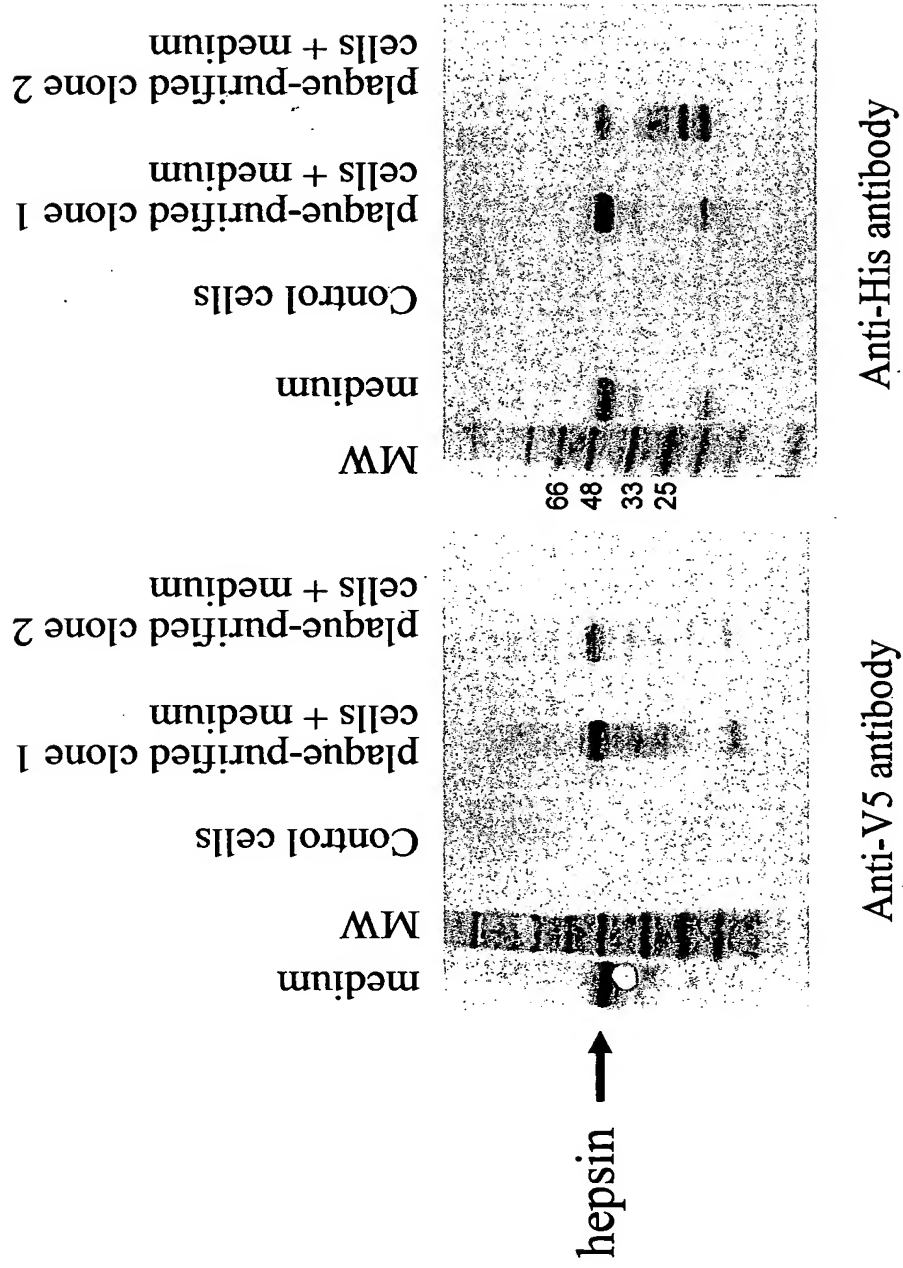


FIG. 14

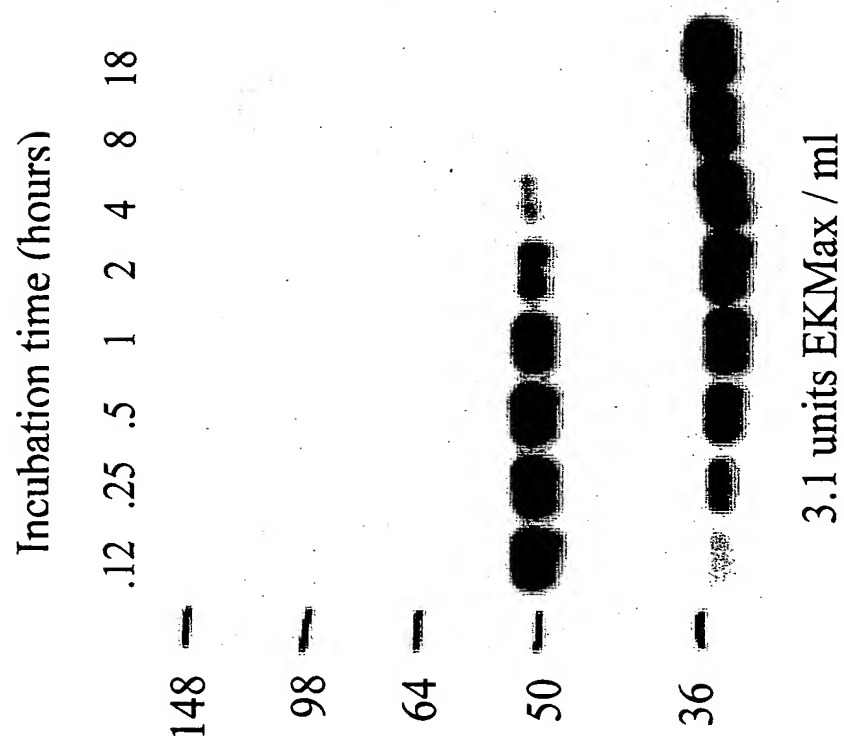


FIG. 15A

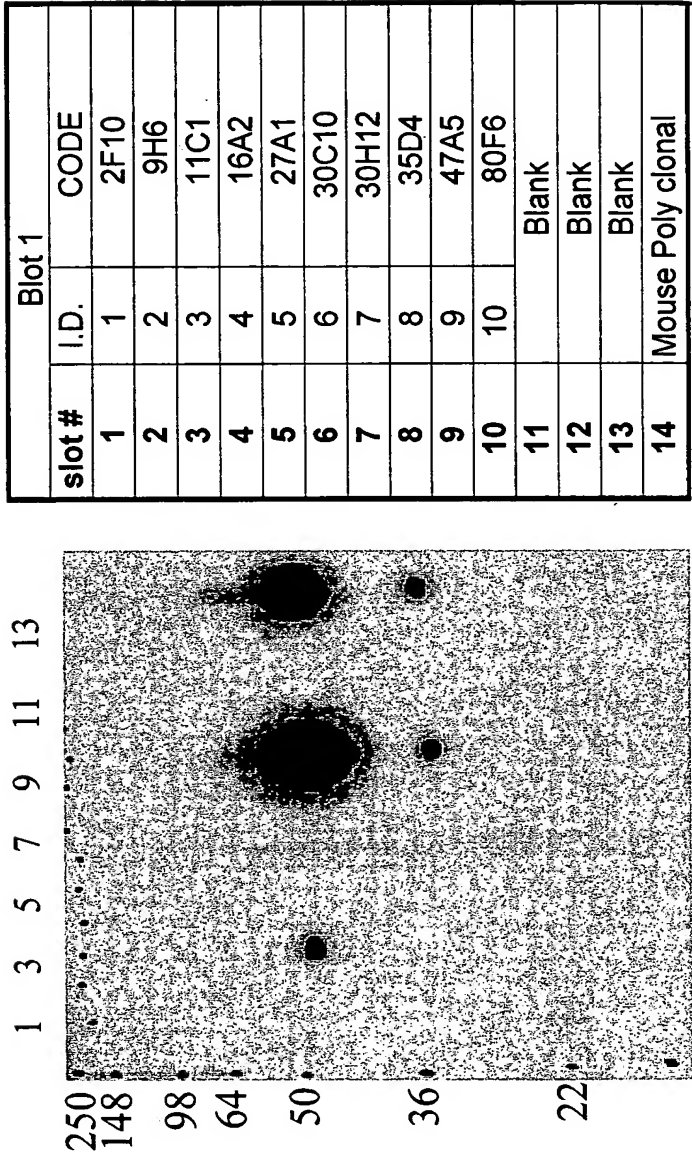
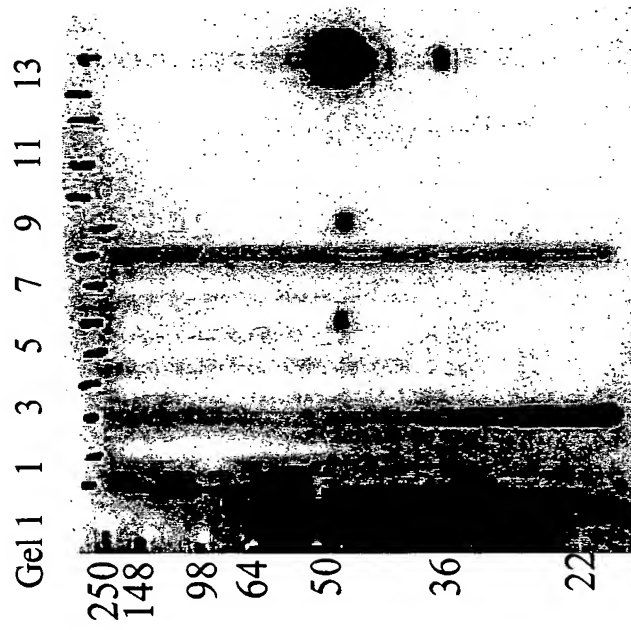
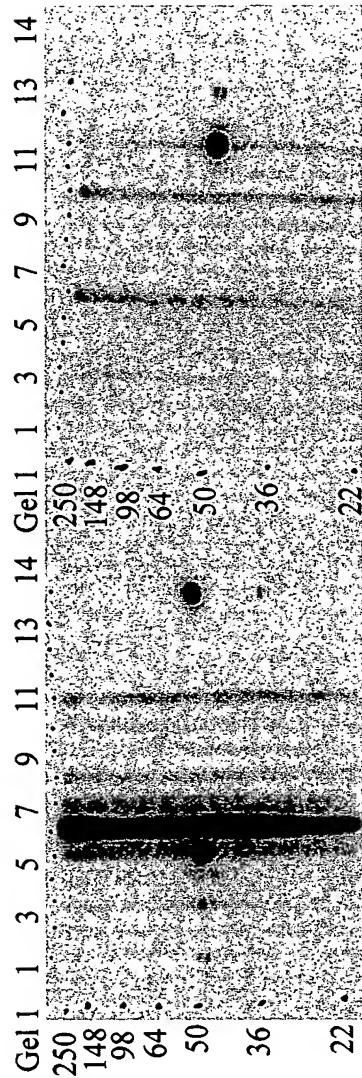


FIG. 15B



Blot 1		
slot #	I.D.	CODE
1	1	7H3
2	2	12A2
3	3	16A3
4	4	20D1
5	5	22A3
6	6	31C1
7	7	31H2
8	8	36B2
9	9	38 E2
10	10	39D6
11	11	41F7
12	12	42 E3
13	Blank	
14	Mouse Poly clonal	

FIG. 15C



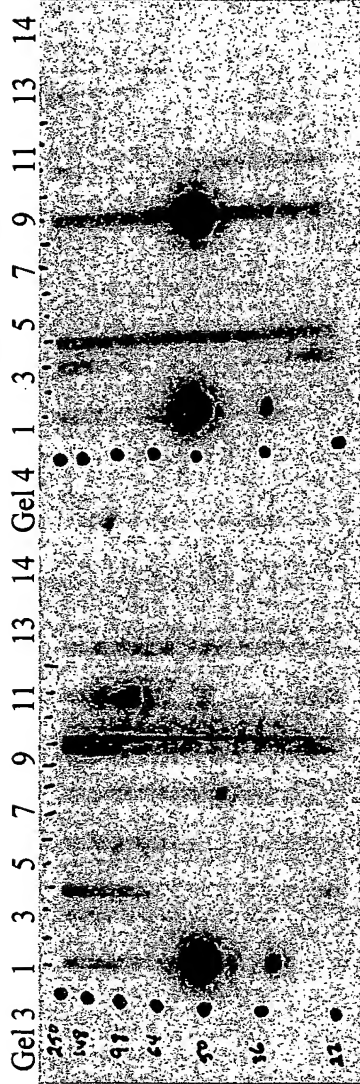
Gel 1

Slot	Sample	Dilution
1	Rabbit Polyclonal -Cayman Chem	1:500
2	Media	neat
3	37G10	"
4	94A7	"
5	46D12	"
6	103E3	"
7	40F1	"
8	103H12	"
9	93D1	"
10	10C2	"
11	102F2	"
12	83E11	"
13	Blank	
14	Blank	
15	Protein - ♂ mouse	1:5000

Gel 2

Slot	Sample	Dilution
1	Protein - ♂ mouse	1:5000
2	Media	neat
3	27E7	"
4	92A7	"
5	91A4	"
6	99B11	"
7	94C7	"
8	91A1	"
9	14H11	"
10	74C7	"
11	72H6	"
12	14C7	"
13	Blank	.
14	Rabbit Polyclonal -Cayman Chem	1:500

FIG. 15D



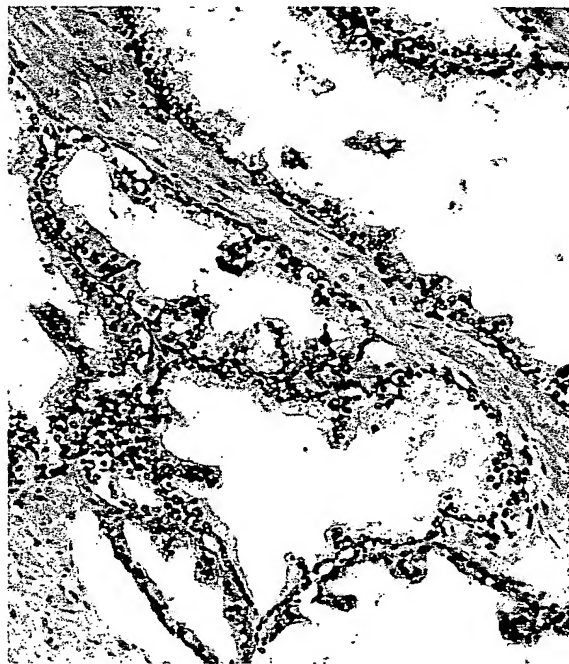
Gel 3

Slot	Sample	Dilution
1	Protein - ♂ mouse	1:5000
2	Media	neat
3	84G6	"
4	84H2	"
5	51F8	"
6	15b11	"
7	90E6	"
8	72H6	"
9	85A4	"
10	87C2	"
11	3G11	"
12	53E11	"
13	91H4	"
14	53C7	"
15	88C7	"

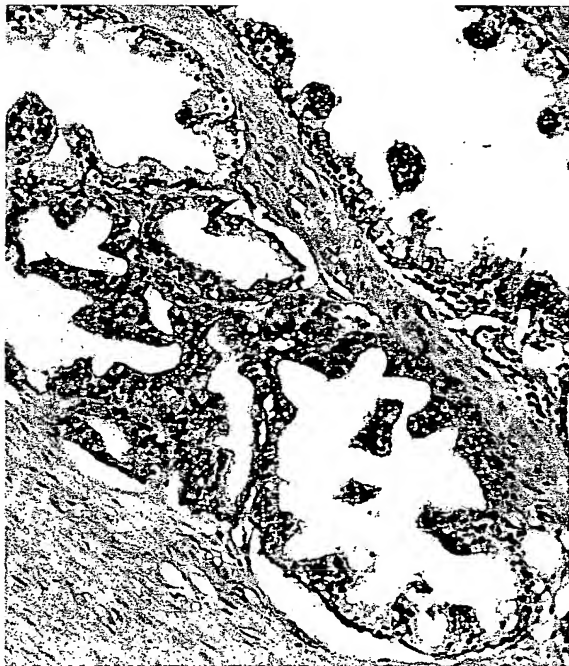
Gel 4

Slot	Sample	Dilution
1	Protein - ♂ mouse	1:5000
2	Media	neat
3	75H3	"
4	98B4	"
5	91C9	"
6	53D9	"
7	80G6	"
8	95F3	"
9	14C7	"
10	80H10	"
11	92A9	"
12	81C8	"
13	96B6	"
14	18I2	"

FIG. 16A

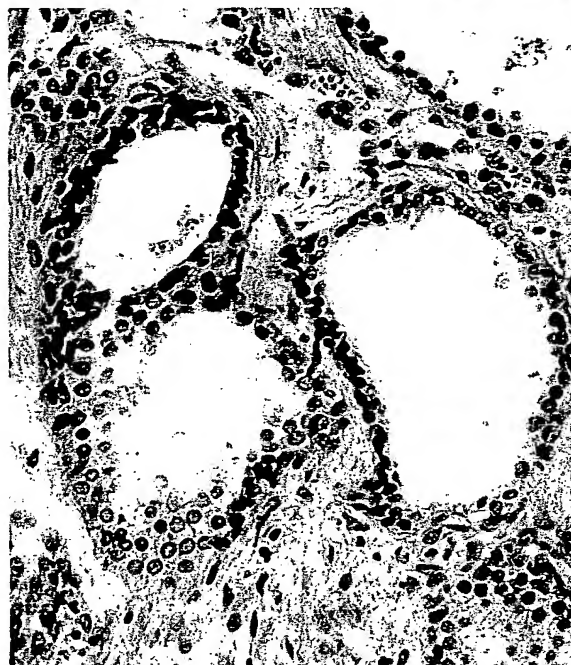


Control
Anti-Hepsin mouse
polyclonal preimmun
1/500 (9)

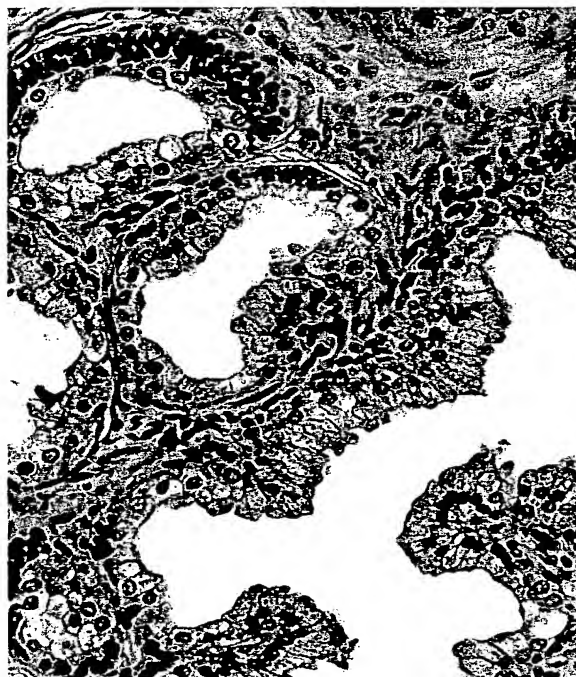


Anti-Hepsin mouse
polyclonal immun
1/500 (10)

FIG. 16B

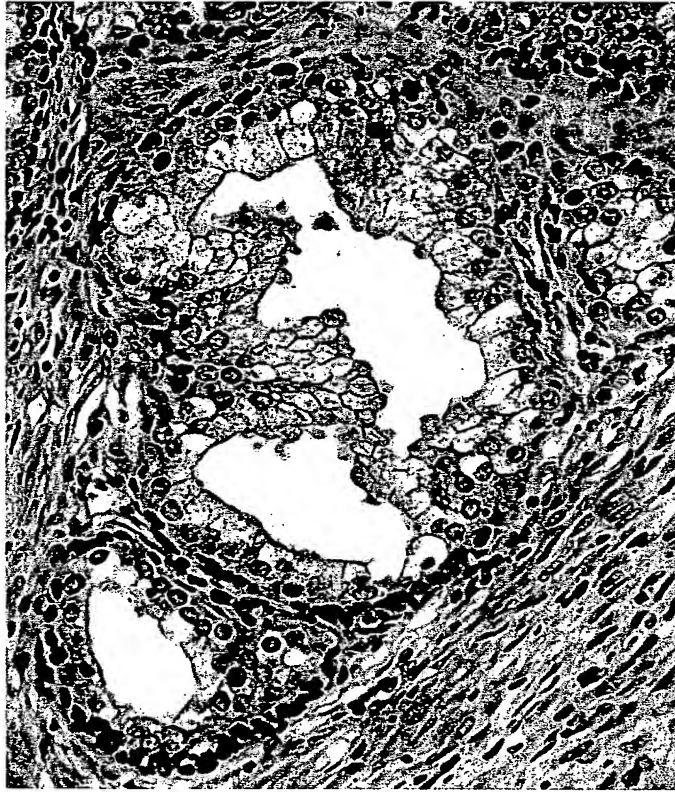


Control medium



Anti-Hepsin monoclonal ab (medium)

FIG. 16C



Anti-Hepsin monoclonal ab

FIG. 17

Human wild-type hepsin amino acid sequence:

```

maqkeggrtv pccsrpkvaa ltagtllllt aigaaswaiv avllrsdqep lypvqvssad 61
arlmvfdkte gtwrlldcssr snarvagls c eemgflralt hseldvrtag angtsgffcv 121
degrlphtqr llevisvdc prgrflaaic qdcgrklpv drivggrdts lgrwpwqvsl 181
rydgahlcgg sllsgdwlt aahcfpernr vlsrwrvfag avaaqasphgl qlgvqavvyh 241
ggylpfrdpn seensndial vhlssplpt eyiqpvc lpa agqalvdgki ctvtwgntq 301
yygqqagvlq earvpiisnd vcngadfygn qikpkmfca g ypeggidacq gds ggpfvce 361
dsisrtprwr lcgivswgtg calaqkpgvy tkvsdfrewi fqaikthsea sgmvvtql

```

the cytoplasmic domain: Met1 to Lys17

the transmembrane domain: Val18 to Leu44

the ectodomain: Arg45 to Leu417

FIG. 18

Hep-ED-EK structure (modified soluble hepsin with substitute activation sequence)

```

1  RSDQEPLYPV QVSSADARLM VFDKTEGTWR LLCSSRSNAR VAGLSCEMG FLRALTHSEL
61  DVRTAGANGT SGFFCVDEGR LPHTQRLLLEV ISVCDPGRGR FLAAICQDCG RRKLPVDDDD
121 KIVGGRDTSL GRWPWQVSLR YDGAHLCCGS LLSGDWLTA AHCFPERNRV LSRWRVFAGA
181 VAQASPHGLQ LGVQAVVYHG GYLPRDPNS EENSNDIALV HLSSPLPLTE YIQPVCLPAA
241 QQALVDGKIC TVTGWNTQY YGQQAGVLQE ARVPIISNDV CNGADFYGNQ IKPKMFCAGY
301 PEGGIDACQG DSGGPFVCEC SISRTPRWRL CGIVSWGTCG ALAQKPGVYT KVSDFREWIF
361 QAIKTHSEAS GMVTQLEFGK PIPNPLLGLD STRTGHHHHH H*

```

Cytoplasmic domain: absent

Transmembrane domain: absent

Modified activation domain: 117-121 (underlined)

V5 and 6-His Tag: 377-401

FIG. 19
Antibody Neutralization

